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University of Toronto

UNIVERSITY
OF
MANITOBA

WINNIPEG

ANNUAL CALENDAR

SESSION 1913-1914

CALENDAR

University of Manitoba

WINNIPEG

Incorporated by Act of the Manitoba
Legislature, 1877

1913-1914

WINNIPEG
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1913

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All communications relating to examinations, curricula, university standing and instruction are to be addressed to the Registrar of the University, while all correspondence respecting college instruction, residence, etc., is to be addressed to the Registrar or Secretary of the College concerned.

REGISTRAR OF THE UNIVERSITY
W. J. SPENCE, B.A.

SECRETARY OF THE UNIVERSITY FACULTY
N. B. MacLEAN, M.A.

RECTOR OF ST. BONIFACE COLLEGE
Rev. E. LECOMPTE, S.J.

WARDEN OF ST. JOHN'S COLLEGE
Rev. J. J. ROBINSON, M.A.

REGISTRAR OF UNITED COLLEGES (Manitoba and Wesley)
Rev. J. W. MELVIN, B.A.

REGISTRAR OF MANITOBA MEDICAL COLLEGE
E. S. POPHAM, M.A., M.D., C.M.

REGISTRAR OF THE MANITOBA COLLEGE OF PHARMACY
W. D. MACDOUGALL

ALMANAC, 1913-1914.

1913—AUGUST

11—Mon.	Last day for receiving applications for the September Examinations.

SEPTEMBER

2—Tues.	Finance Committee meets.
3—Wed.	Board of Studies meets. Opening of ballots and declaration of result of election of ten representatives of Convocation on Council.
11—Thur.	Supplemental and Matriculation Examinations begin.
17—Wed.	Board of Studies meets.
23—Tues.	Registration. Opening day of First Term.
24—Wed.	University lectures begin.
25—Thur.	Registrar to be notified on or before this date of appointment of representatives on Council and Board of Studies.
30—Tues.	Finance Committee meets.

OCTOBER

1—Wed.	Board of Studies meets.
2—Thur.	University Council meets. Election of Vice-Chancellor. Appointment of Standing Committees. Bursar's yearly statement.
11—Sat.	University Field Day.
15—Wed.	Board of Studies meets.

NOVEMBER

4—Tues.	Finance Committee meets.
5—Wed.	Board of Studies meets.
15—Sat.	Last day for receiving applications for December Examinations in Arts, Medicine and Engineering.
19—Wed.	Board of Studies meets.

DECEMBER

2—Tues.	Finance Committee meets.
3—Wed.	Board of Studies meets.
10—Wed.	Payment of first moiety of Scholarships.
11—Thur.	University Council meets.
15—Mon.	Christmas Examinations begin.
17—Wed.	Board of Studies meets.
23—Tues.	First Term ends.
24—Wed.	Christmas Vacation begins.

1914—JANUARY

5—Mon.	Opening day of Second Term. University lectures begin.
6—Tues.	Finance Committee meets.
7—Wed.	Board of Studies meets.
21—Wed.	Board of Studies meets.

FEBRUARY

3—Tues. Finance Committee meets.
4—Wed. Board of Studies meets.
12—Thur. University Council meets. Appointment of Examiners.
18—Wed. Board of Studies meets.

MARCH

2—Mon. Last day for receiving Theses for the M.A. degree.
3—Tues. Finance Committee meets.
4—Wed. Board of Studies meets.
9—Mon. Most Rev. R. Machray, D.D., LL.D., Archbishop of Rupert's Land, first Chancellor of the University, died, 1904.
18—Wed. Board of Studies meets.
21—Fri. Last day for receiving applications for April Examinations in Arts, Law, Medicine and Engineering.
31—Tues. Finance Committee meets.

APRIL

1—Wed. Board of Studies meets.
2—Thur. University Council meets.
9—Thur. University Lectures close.
20—Mon. April Examinations in Arts, Law, Medicine and Engineering begin.

N.B.—The practical Examinations in Arts, Medicine, and Engineering will be held in April, prior to the opening of the written Examinations, at dates selected by the Board of Studies after consultation with the Examiners.

MAY

5—Tues. Finance Committee meets.
6—Wed. Board of Studies meets.
9—Sat. Last day for receiving applications for June Matriculation Examinations and for Special Examination for Travelling Scholarship.
13—Wed. Payment of second moiety of the following Scholarships: Matriculation, First Year in Law, First and Second Years in Arts and Engineering, First, Second and Third Years in Medicine.
14—Thur. University Council meets to consider reports of Examiners.
15—Fri. Conferring of degrees at 3 o'clock p.m. Meeting of Convocation.
20—Wed. Board of Studies meets.
21—Thur. Payment of second moiety of the following Scholarships: Second Year in Law, Third Year in Arts and Engineering, Fourth Year in Medicine.

JUNE

2—Tues. Finance Committee meets.
3—Wed. Board of Studies meets.
4—Thur. University Council meets.
9—Tues. Matriculation Examinations begin. Special Examination for Travelling Scholarship begins.

JULY

1—Wed. Board of Studies meets to receive reports of Matriculation Examiners.

THE UNIVERSITY OF MANITOBA

HISTORICAL SKETCH.

The University of Manitoba was established by Act of the Manitoba Legislature, in 1877, "for the purpose (as the preamble states) of raising the standard of higher education in the Province and of enabling all denominations and classes to obtain academic degrees." The government of the University was vested in a Chancellor, a Vice-Chancellor and a University Council, with powers as a "body politic and corporate" to receive, hold and sell property, to arrange courses of study, to hold examinations and to grant degrees. The Act provided for the affiliation of Colleges and for the granting of degrees in Divinity by those Colleges to students who should have obtained recognized academic standing in Arts subjects. The Chancellor was to be appointed by the Lieutenant-Governor-in-Council, and the University Council was to consist of seven representatives from each of the affiliated Colleges, three from Convocation and two from the Board of Education of the Province.

The three Colleges already in existence in Manitoba were affiliated with the University at its inception. St. John's, the Anglican institution, had been reorganized in 1866 by Bishop (afterwards Archbishop) Machray, who became in 1877 the first Chancellor of the University. St. Boniface had grown from a mission school early in the century to be the chief Roman Catholic College of the West. Manitoba College, in connection with the Presbyterian Church, had been organized in 1871. The Vice-Chancellor of the new University was the Hon. Joseph Royal; the Bursar was Mr. Duncan McArthur; and the Registrar Mr. E. W. Jarvis.

Since 1877 four Colleges have been received into affiliation with the University. The Manitoba Medical College was affiliated in 1882, Wesley College was affiliated in 1888, the Manitoba College of Pharmacy in 1902, and the Manitoba Agricultural College in 1907.

In 1885 an agreement between the Dominion Government and the Province of Manitoba provided for an endowment not exceeding 150,000 acres of land for the University of Manitoba "for its maintenance as a University capable of giving proper training in the higher branches of education."

In 1900 an amendment to the University Act gave the University "power to give instruction and teaching in the several faculties and different branches of knowledge as may from time to time be directed by the Council of the University." The present site was granted by the Dominion Government, and the corner-stone was laid in 1900 by the King, then Duke of Cornwall and York. Six new chairs were founded in 1904. A department of Civil Engineering was organized in 1907, and departments of Electrical Engineering, Political Economy, English and History in 1909.

The present staff consists of twenty-seven professors, lecturers and demonstrators.

The affiliation of Manitoba Agricultural College with the University was terminated by an Act of the Provincial Legislature in 1912.

The University Council, the governing body of the University, consists of the Chancellor, the President,* and fifty-eight members, made up as follows:—Seven representatives from each of the affiliated Arts Colleges, ten from Convocation, three from Manitoba Medical College, four from the College of Physicians and Surgeons of Manitoba, seven from the Provincial Government (exclusive of the Minister of Education, who is *ex officio* a member), three from the Manitoba College of Pharmacy, and two from the University Faculty.

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* The first President of the University, Dr. James A. MacLean, assumed office on January 1st, 1913.

COLLEGES AFFILIATED WITH THE UNIVERSITY

St. Boniface College, St. Boniface, in connection with the Roman Catholic Church. *Rector*—Rev. Edouard Lecompte, S.J., St. Boniface College.

St. John's College, Winnipeg, in connection with the Church of England. *Warden*—Rev. J. J. Robinson, M.A., St. John's College.

Manitoba College, Winnipeg, in connection with the Presbyterian Church in Canada. *Acting Principal*—Rev. A. B. Baird, M.A., D.D., 247 Colony St.

Wesley College, Winnipeg, in connection with the Methodist Church in Canada. *Acting Principal*—Rev. A. Stewart, D.D., 239 Colony St.

Manitoba Medical College, Winnipeg. Dean—H. H. Chown, B.A., M.D., C.M., 263 Broadway Ave.

Manitoba College of Pharmacy, Winnipeg. Principal—H. E. Bletcher, Phm.B., Suite 4, Bannatyne Apartments.

VISITOR

THE HON. DOUGLAS COLIN CAMERON,
Lieutenant-Governor of Manitoba.

CHANCELLOR

MOST REV. S. P. MATHESON, D.D., D.C.L., Archbishop of Rupert's Land.

VICE-CHANCELLOR

SIR JOSEPH DUBUC, B.C.L., LL.D., formerly Chief Justice of Manitoba.

PRESIDENT

JAMES A. MacLEAN, Ph.D., LL.D.

HON. BURSAR

J. A. M. AIKINS, M.A., K.C.

REGISTRAR

W. J. SPENCE, B.A.

SOLICITOR

I. PITBLADO, M.A., LL.B.

COUNCIL OF THE UNIVERSITY
1912-1913

Chairman

Most Rev. S. P. MATHESON, D.D., D.C.L., Archbishop of Rupert's Land, Chancellor.

Vice-Chairman

Sir JOS. DUBUC, B.C.L., LL.D., Vice-Chancellor.

President, ex-Officio

JAMES A. MACLEAN, M.A., Ph. D.

Representatives of St. Boniface College

Rev. G. JEAN, S.J., Rector.
Right Rev. Msgr. A. A. CHERRIER, LL.D.
Rev. JOSEPH BLAIN, S.J.
Sir JOSEPH DUBUC, B.C.L., LL.D.
JOSEPH BERNIER, M.A.
HON. JAMES E. PRENDERGAST, B.C.L.
ROGER GOULET, M.A.

Representatives of St. John's College

Very Rev. DEAN COOMBES, M.A.
Ven. ARCHDEACON FORTIN, B.A., D.D.
Rev. CANON MURRAY, M.A.
Rev. CANON PHAIR, M.A.
J. A. MACHRAY, M.A., LL.B.
Rev. CANON MATHESON, M.A.
WALTER BURMAN, B.A.

Representatives of Manitoba College

Rev. A. B. BAIRD, M.A., D.D., Acting Principal.
Rev. GEORGE BRYCE, M.A., LL.D.
Rev. G. B. WILSON, M.A., LL.B , Ph.D.
Rev. E. GUTHRIE PERRY, B.A., Ph.D.
EDWARD BROWN, Esq.
GEORGE H. ROSS, B.A., LL.B.
WILLIAM TIER, B.A.

Representatives of Wesley College

Rev. ANDREW STEWART, D.D.
J. A. M. AIKINS, M.A., K.C.
J. H. ASHDOWN, Esq.
R. T. RILEY, Esq.
E. L. TAYLOR, K.C.
W. F. OSBORNE, M.A.
H. W. HUTCHINSON, ESQ.

Representatives of Manitoba Medical College

H. H. CHOWN, B.A., M.D., L.R.C.P., Dean of Faculty.
E. S. POPHAM, M.A., M.D., C.M.
S. W PROWSE, B.A., M.D., F.R.C.S.

Representatives of the College of Physicians and Surgeons

J. S. GRAY, M.D., C.M.
D. H. McCALMAN, B.A., M D., C.M.
WILLIAM ROGERS, B.A., M.D., C.M.
R. S. THORNTON, M.B., C.M.

Representatives of Convocation

GORDON BELL, B.A., M.D., C.M.
F. W. CLARK, B.A.
D. M. DUNCAN, M.A.
J. HALPENNY, B.A., M.D., C.M
J. R. JONES, M.D., L.R.C.P. (London).
E. LOFTUS, M.A., LL.B.
D. McINTYRE, M.A., LL.D., Superintendent of Winnipeg Schools.
W. A. McINTYRE, B.A., LL.D , Principal of Normal School.
I. PITBLADO, M.A., LL.B.
W. J. SPENCE, B.A.

Representatives of the Provincial Government

The Hon. the MINISTER OF EDUCATION (ex officio).
R. FLETCHER, B.A.
S. CARSON LEE, M.A.
C. K. NEWCOMBE, B.A.
Rev. W. P. REEVE, B.A., B.D.
Rev. DAVID CHRISTIE, M.A.
STEPHEN BENSON, Esq.
R. N. LEA, Esq.

Representatives of the College of Pharmacy

H. E. BLETCHER, Phm.B., Principal.
E. D. MARTIN, Esq.
A. R. LEONARD, Esq.

Representatives of the University Faculty.

Voting Representatives

FRANK ALLEN, M.A., Ph.D., F.R.S.C.
M. A. PARKER, B.Sc., F.C.S.

Non-voting Representatives

E. E. BRYDONE-JACK, B.A., C.E. (Renss.)
A. W. CRAWFORD, M.A., Ph.D.
N. B. MACLEAN, M.A.
E. P. FETHERSTONHAUGH, B.Sc.
SWALE VINCENT, M.D., D.Sc.

CONVOCATION

Convocation consists of the Chancellor, the Vice-Chancellor, the members of the University Council, all University Graduates in Manitoba registered in 1877, and all Graduates of the University and Graduates in Theology from any of the Colleges Affiliated with the University.

The annual meeting of Convocation is held in May of each year on the day of the conferring of degrees by the University, at the close of the public exercises, at which time nomination of candidates for representation on the Council is made.

THE BOARD OF STUDIES

The general superintendence of all examinations is entrusted to a Board called the Board of Studies, composed of members of the Council elected annually, as follows: Two by each of the affiliated Colleges in Arts, two by the Graduate Representatives, one by the College of Physicians and Surgeons of Manitoba, one by Manitoba Medical College, two by the Council (of whom the President is one), and two by the University Faculty.

It is the duty of the Board, also, to report to the Council, when they see fit, on the studies of the University, and other matters connected therewith, and generally to discharge all duties that may be assigned them by the Council.

MEMBERS OF THE BOARD, 1912-1913

Rev. Father Cherrier,* *Chairman.*

W. J. Spence, *Secretary.*

Rev. Father Cherrier
Rev. Father Blain
Very Rev. Dean Coombes†
Rev. Canon Murray
Prof. F. W. Clark
Mr. William Tier
Rev. Dr. Stewart
Prof. W. F. Osborne
Dr. E. S. Popham
Dr. J. S. Gray
Dr. J. R. Jones
Mr. D. M. Duncan
Prof. Frank Allen
Prof. M. A. Parker
Mr. W. J. Spence

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* After Feb. 15th, 1913, President MacLean assumed this office.

† During the greater part of the year the place of Dean Coombes was taken by Rev. Canon Phair, owing to the former's absence from Winnipeg.

OTHER STANDING COMMITTEES OF THE UNIVERSITY COUNCIL—1912-1913.

University Land Board

Most Rev. Archbishop Matheson, *Chairman.*

Mr. J. A. M. Aikins
Rev. Dr. A. B. Baird
Mr. R. T. Riley
Mr. I. Pitblado
Mr. J. A. Machray
Dr. W. A. McIntyre

R. H. Shanks, *Secretary.*

Finance Committee

Rev. Dr. Wilson, *Secretary.*

Mr. J. A. Machray
Mr. Edward Brown
Mr. E. Loftus
Mr. E. D. Martin
Mr. H. W. Hutchinson
Mr. Joseph Bernier
Dr. J. Halpenny
Dr. D. McIntyre
Mr. Geo. H. Ross

W. J. Spence, *Secretary.*

Rhodes Scholarship Committee

Sir Joseph Dubuc, *Chairman.*

Hon. Mr. Justice Richards
Dr. H. H. Chown
Hon. Mr. Judge Myers
Mr. W. J. Spence

W. J. Spence, *Secretary.*

Building and Grounds Committee

Rev. Dr. Stewart, *Chairman.*

Mr. Walter Burman
Mr. R. Fletcher
Prof. Frank Allen
Prof. H. E. Bletcher
Prof. N. B. McLean

W. J. Spence, *Secretary.*

Library Committee

Professor Parker, *Chairman.*

Rev. Canon Phair
Rev. Dr. Wilson
Prof. Frank Allen
Rev. Dr. Perry
Prof. W. F. Osborne
Dr. J. R. Jones

UNIVERSITY FACULTY

James A. MacLean, B.A. (Tor.), Ph.D. (Columbia). LL.D. (Colorado and Toronto), *President.*

Frank Allen, M.A., Ph.D., F.R.S.C., *Chairman.*

Neil Bruce MacLean, M.A., *Secretary.*

Frank Allen, M.A. (U.N.B., and Cornell), Ph.D. (Cornell), F.R.S.C. .... *Professor of Physics*

Gordon Bell, B.A. (Tor.), M.D., C.M. (Man.) .... *Professor of Bacteriology, Pathology and Histology*

A. H. Reginald Buller, B.Sc. (Lond.), Ph.D. (Leipzig), D.Sc. (Birm.), F.R.S.C. .... *Professor of Botany*

Matthew A. Parker, B.Sc. (Glas.), F.C.S .... *Professor of Chemistry*

Swale Vincent, M.D. (Lond.), D.Sc. (Edin.), M.R.C.S., L.R.C.P., F.R.SS. E. & C. .... *Professor of Physiology*

Ernest E. Brydone-Jack, B.A. (U.N.B.), C.E. (Renss.), M.Can.Soc.C.E., M.Am.Soc.C.E. .... *Professor of Civil Engineering*

Edward P. Fetherstonhaugh, B.Sc. (McGill), A. M. Can. Soc. C.E. .... *Professor of Electrical Engineering*

Arch. Brown Clark, M.A. (Edin.) .... *Professor of Political Economy*

Alexander W. Crawford, M.A. (Tor.), Ph.D. (Cornell) .... *Professor of English*

Chester B. Martin, M.A. (U.N.B.), M.A., B.Litt. (Oxon.) *Professor of History*

Neil Bruce MacLean, M.A. (Tor.) .... *Professor of Mathematics*

Robert C. Wallace, M.A., B.Sc. (Edin.), Ph.D. (Göttingen), D.Sc. (Edin.), F.G.S. .... *Professor of Geology and Mineralogy*

Arthur Alexander Stoughton, Ph.B. (School of Architecture, Columbia) .... *Professor of Architecture*

———————— .... *Professor of Mechanical Engineering*

William F. Osborne, M.A. (Tor.) .... *Professor of French Language and Literature*

Jacob Harold Heinzelmann, B.A. (Illinois), Ph.D. (Chicago) .... *Professor of German Language and Literature*

Robert K. McClung, M.A. (McGill), B.A. (Cantab.), D.Sc. (McGill), F.R.S.C. .... *Assistant Professor of Physics*

Lloyd A. H. Warren, M.A. (Queen's) ....
Assistant Professor of Mathematics
A. T. Cameron, M.A., B.Sc. (Edin.) ....
Assistant Professor of Physiology
Leslie I. Johnstone, B.S. (Maine) ....
Assistant Professor of Surveying and Geodesy
Charles J. Triggerson, M.A. (McMaster), Ph.D. (Cornell),
Assistant Professor of Zoology
Henry P. Armes, B.Sc. (Leeds), Ph.D. (Strassburg)..............
Lecturer in Chemistry
John W. Dorsey, E.E. (Lehigh) ......*Lecturer in Electrical and Mechanical Engineering*
Ralph Flenley, M.A. (Liverpool), B.Litt. (Oxon.) ....
Lecturer in History
Ellis E. Bankson, B.S. (Milliken)..
Lecturer in Materials and Hydraulics
Thomas Howden Fraser, M.A., LL.B. (Edin.).....................
Lecturer in Political Economy
Robert W. Moffatt, B.A. Sc. (Tor.) ....
Lecturer in Masonry Construction and Drawing
Aaron J. Perry, M.A. (Yale)....*Lecturer in English Language*
Harold R. Kingston, M.A. (Queen's) ....
Lecturer in Mathematics

OTHER MEMBERS OF THE TEACHING STAFF

Olafur T. Anderson, B.A. (Man.)..*Demonstrator in Physics*
Jon Arnason, B.A. (Man.)............*Demonstrator in Chemistry*
Arthur H. O'Reilly, B.C.E. (Man.) ....
Demonstrator in Civil Engineering

INSTRUCTION IN THE UNIVERSITY

Instruction in the University is at present given in the Natural and Physical Sciences, in Civil, Electrical and Mechanical Engineering and Architecture, in the Higher Mathematics and in English, History, Political Economy, French and German.

In all departments other than those in which the University offers teaching, students may obtain the necessary instruction either at one of the colleges affiliated with the University, or at some other recognized institution of learning.

Students in Medicine receive instruction at the University in the following subjects:—Physics, Chemistry, Practical Chemistry, Zoology, and Practical Zoology of the First Year; Organic Chemistry, Physiology and Practical Physiology of the Second Year; Physiology and Practical Physiology of the Third Year. They also receive instruction from a member of the University Faculty in the class-rooms and laboratories of Manitoba Medical College in the following subjects:—Histology and Practical Histology of the Second Year; Pathology and Practical Pathology of the Third Year; Bacteriology and Practical Bacteriology of the Fourth Year. In all other subjects of the course instruction is given in Manitoba Medical College or in the Winnipeg General Hospital by members of the Faculty of Manitoba Medical College. For a list of these members see the Calendar of Manitoba Medical College.

ADMINISTRATIVE AND OTHER OFFICERS.

W. J. Spence, B.A.	*Registrar*
R. H. Shanks	*Secretary of Land Board and Accountant*
Miss H. N. Macvicar	*Assistant to Registrar*
Miss J. G. Matthew	*Secretary to President*
Miss Mabel Jones Smith	*Assistant to Registrar*
S. K. Forde	*Assistant Accountant*
James Buchanan	*Janitor*
W. H. Peake	*Assistant Janitor*

UNIVERSITY EXAMINERS, 1912-1913

ARTS

Classics: Very Rev. Dean Coombes, M.A.; F. W. Clark, B.A.; R. O. Jolliffe, B.A.; Rev. Canon Matheson, M.A.; T. H. Billings, M.A.; Rev. E. Roby, S.J.; F. E. Gane, B.A.

Mathematics (First Year): Rev. J. F. Cross, M.A.; William Tier, M.A.; N. R. Wilson, M.A., Ph.D.; Rev. F. Downes, S.J.; L. A. H. Warren, M.A.

Higher and Engineering Mathematics: N. B. MacLean, M.A.; L. A. H. Warren, M.A.

Physics (Special Courses); Frank Allen, M.A., Ph.D.; R. K. McClung, M.A., D.Sc.; J. G. Johannsson, B.A.; Rev. J. Blain, S.J.

Physics (First and Second Years and General Course): Frank Allen, M.A., Ph.D.; Rev. J. F. Cross, M.A.; R. K. McClung, M.A., D.Sc.

Philosophy: Rev. Canon Murray, M.A.; Rev. A. B. Baird, M.A., D.D.; Rev. James Elliott, B.A., Ph.D.; Rev. J. Dick Fleming, M.A , B.D.; W. A. Corbett, M.A., LL.B.; N. R. Wilson, M.A., Ph.D.; Rev. L. Teasdale, S.J.

English: A. W. Crawford, M.A., Ph.D.; Rev. Canon Phair, M.A.; R. H. Rowland, B.A.; Rev. W. T. Allison, M.A., Ph.D.; C. F. Gillen, M.A., Ph.D.; A. J. Perry, M.A.; W. F. Osborne, M.A.

French: W. F. Osborne, M.A.; A. D. Baker, M.A.; A. M. Bothwell, M.A.; H. J. Field.

German: A. D. Baker, M.A.; A. M. Bothwell, M.A.; Miss M. C. Rowell, M.A.

History (Special Courses): Chester Martin, M.A., B.Litt.; R. Flenley, M.A., B.Litt.

Political Economy (Special Courses): A. B. Clark, M.A.; T. H. Fraser, M.A., LL.B.

History (First and Second Years): Rev. S. G. Bland, D.D.; Rev. A. B. Baird, M.A., D.D.; Rev. Canon Gill, M.A.; Rev. G. Longpré, S.J.

Botany: A. H. R. Buller, B.Sc., Ph.D., D.Sc.; R. C. Wallace, M.A., B.Sc., Ph.D.

Geology and Mineralogy: R. C. Wallace, M.A., B.Sc., Ph.D.; A. H. R. Buller, B.Sc., Ph.D., D.Sc.

Zoology: C. J. Triggerson, M.A., Ph.D.; E. J. Evatt, M.B., B.S.

Chemistry: M. A. Parker, B.Sc., F.C.S.; H. P. Armes, B.Sc., Ph.D.

Physiology: Swale Vincent, M.D., D.Sc.; A. T. Cameron, M.A., B.Sc.

Icelandic: Rev. R. Marteinsson, B.A.; Rev. F. J. Bergmann, B.A.

Hebrew: Rev. A. Stewart, D.D.; Rev. E. G. Perry, B.A., Ph.D.

Scripture: Rev. A. Stewart, D.D.; Rev. E. G. Perry, B.A., Ph.D.; Rev. Canon Matheson, M.A.

ENGINEERING

Mathematics: N. B. MacLean, M.A.; L. A. H. Warren, M.A. L. A. H. Warren, M.A.

Physics: Frank Allen, M.A., Ph.D.; R. K. McClung, M.A., D.Sc.

Chemistry: M. A. Parker, B.Sc., F.C.S.; H. P. Armes, B.Sc., Ph.D.

Geology and Mineralogy: R. C. Wallace, M.A., Ph.D., D.Sc.; A. H. R. Buller, B.Sc., Ph.D., D.Sc.

English: A. W. Crawford, M.A., Ph.D.; A. J. Perry, M.A.

Civil Engineering: E. E. Brydone-Jack, B.A., C.E.; L. J. Johnstone, B.Sc.; R. W. Moffatt, B.A.Sc.; E. E. Bankson, B.S.

Electrical Engineering: E. P. Fetherstonhaugh, B.Sc.; J. W. Dorsey, E.E.

MEDICINE

Physics: Frank Allen, M.A., Ph.D.; R. K. McClung, M.A., D.Sc.

Zoology: C. J. Triggerson, M.A., Ph.D.; E. J. Evatt, M.B., B.S.

Chemistry: M. A. Parker, B.Sc., F.C.S.; H. P. Armes, B.Sc., Ph.D.

Physiology: Swale Vincent, M.D., D.Sc.; A. T. Cameron, M.A., B.Sc.; F. A. Young, M.D.

Theoretical Anatomy (First Year): E. J. Evatt, M.B., B.S.; R. W. Kenny, M.D.

Practical Anatomy (First Year): E. J. Evatt, M.B., B.S.; W. W. Musgrove, M.D.

Theoretical Anatomy (Second Year): E. J. Evatt, M.B., B.S.; R. W. Kenny, M.D.

Practical Anatomy (Second Year): E. J. Evatt, M.B., B.S.; R. B. Mitchell, M.D.

Practical and Applied Anatomy (Third Year): J. Pullar, M.D.; M. R. Blake, M.D.

Histology: Gordon Bell, B.A., M.D., C.M.; E. J. Boardman, M.D.

Pathology: Gordon Bell, B.A., M.D., C.M.; S. J. S. Pierce, M.D.

Bacteriology: Gordon Bell, B.A., M.D., C.M.; J. H. Leeming, M.D.

Therapeutics: Wm. Rogers, M.D.; H. M. Murdoff, M.D.

Materia Medica and Pharmacy: C. C. Field, M.D., C.M.; F. C. Bell, M.D.

Medical Jurisprudence: T. G. Hamilton, M.D.; O. S. Waugh, M.D.

Sanitary Science: A. J. Douglas, B.A., M.D., C.M.; Wm. Turnbull, M.D.

Theoretical Medicine (Fourth Year): William Chestnut, M.D., C.M.; D. G. Ross, M.D.

Theoretical Medicine (Fifth Year): Chas. Hunter, M.D.; J. C. Fenwick, M.D.

Clinical Medicine: E. S. Popham, M.D.; E. W. Montgomery, M.D., C.M.; G. F. Stephens, M.D.

Theoretical Surgery (Fourth Year): B. J. Brandson, M.D.; S. A. Smith, M.D.

Theoretical Surgery (Fifth Year): James McKenty, M.D., C.M.; D. S. MacKay, M.D.

Clinical Surgery: N. J. MacLean, M.D.; J. O. Todd, M.D., C.M.; J. E. Lehmann, M.D.

Obstetrics and Pediatrics (Fourth Year): O. Bjornson, M.D.; H W. Wadge, M.D.

Obstetrics (Fifth Year): D. H. McCalman, M.D.; A. W. Allum, M.D.

Gynaecology: R. M. Simpson, M.D.; C. R. Gilmour, M.D.

Ophthalmology and Otology: W. H. Smith, M.D.; V. G. Williams, M.D.

C.M. Degree: H. H. Chown, B.A., M.D., C.M.; J. O. Todd, M.D.

LAW

A. N. McPherson, M.A., LL.B.; D. W. McKerchar, M.A., LL.B.; Edwin Loftus, M.A., LL.B.; W. A. Corbett, M.A., LL.B.; George H. Ross, B.A., LL.B.; H. H. Saunderson, B.A., LL.B.

MATRICULATION

(Group (1) in each case was appointed to prepare the questions; Group (2) to examine the candidates' answers.)

Classics:

(1) F. W. Clark, B.A.; R. O. Jolliffe, B.A.

(2) Rev. Canon Matheson, M.A.; Rev. J. Bergin, S.J.; F. E. Gane B.A.; Miss Maude Bissett, B.A.; P. C. Dobson, B.A.; Miss G. Misener, Ph.D.; A. E. Miller, B.A.

Mathematics:

(1) L. A. H. Warren, M.A.; Robert Fletcher, B.A.; A. C. Campbell, B.A.

(2) N. R. Wilson, M.A., Ph.D.; William Tier, M.A.; W. W. F. Loucks, B.A.; J. C. Pincock, B.A.; Walter Burman, B.A.; C. Cornish; W. W. Macdonald, B.A.; G. H. Hogarth, B.A.

English:

(1) S. E. Lang, B.A.; A. J. Perry, M.A.

(2) C. W. Laidlaw, B.A.; R. F. Argue, B.A.; R. H. Rowland, B.A.; C. F. Gillen, M.A., Ph.D.; A. M. Shields, W. B. Beer; G. N. Belyea, B.A.

French and German:

(1) A. M. Bothwell, M.A.; W. J. Spence, B.A.

(2) A. D. Baker, M.A.; Miss A. L. Brunstermann; Miss M. C. Rowell, M.A.; Miss S. L. Macmorine, B.A.; Miss S. C. Doupe; Miss Helen Ross, B.A.; H. F. Field.

Icelandic: Rev. R. Marteinsson, B.A.; Rev. F. J. Bergmann, B.A.

Swedish: Emil Lundkvist; Rev. F. J. Bergmann, B.A.

History:

(1) S. J. McKee, B.A., LL.D.; D. M. Duncan, M.A.

(2) P. D. Harris, B.A.; E. J. Lewis, M.A.; W. R. Cottingham, B.A.

SEPTEMBER MATRICULATION EXAMINATIONS.

(Group (1) in each case was appointed to prepare the questions; Group (2) to examine the candidates' answers.)

Classics:

(1) F. W. Clark, B.A.; R. O. Jolliffe, B.A.

(2) Rev. Canon Matheson, M.A.; A. E. Miller, B.A.

Mathematics:
(1) L. A. H. Warren, M.A.; Robert Fletcher, B.A.; A. C. Campbell, B.A.
(2) William Tier, M.A.; J. C. Pincock, B.A.

English:
(1) S. E. Lang, B.A.; A. J. Perry, M.A.
(2) R. H. Rowland, B.A.; G. N. Belyea, B.A.

French and German:
(1) A. M. Bothwell, M.A.; W. J. Spence, B.A.
(2) Miss A. L. Brunstermann; Miss Helen Ross, B.A.

Icelandic: Rev. R. Marteinsson, B.A.; Rev. F. J. Bergmann, B.A.

Swedish: Emil Lundkvist; Rev. F. J. Bergman, B.A.

History:
(1) S. J. McKee, B.A., LL.D.; D. M. Duncan, M.A.
(2) P. D. Harris, B.A.; Rev. R. Marteinsson, B.A.

Science:
(1) R. K. McClung, M.A., D.Sc.; Alex. McIntyre, M.A.; H. P. Armes, B.Sc., Ph.D.
(2) R. T. Hodgson, B.A.; N. R. Wilson, M.A., Ph.D.

SEPTEMBER SUPPLEMENTAL EXAMINATIONS (UNDERGRADUATE)

Classics: Very Rev. Dean Coombes, M.A.; R. O. Jolliffe, B.A.

Mathematics: N. B. MacLean, M.A.; N. R. Wilson, M.A., Ph.D.

English: W. T. Allison, M.A., Ph.D.; A. J. Perry, M.A.

French and German: W. F. Osborne, M.A.; A. M. Bothwell, M.A.

Philosophy: Rev. James Elliott, B.A., Ph.D.; W. A. Corbett, M.A., LL.B.

History (First and Second Years): Rev. S. G. Bland, D.D.; Rev. Canon Gill, M.A.

The Examiners in other courses were the same as for April.

Requirements for Matriculation into the University of Manitoba

Matriculation for Arts and Science

Subjects of Examination

All English-speaking candidates at this examination shall take the following fixed subjects:

English,
History,
Mathematics,
Latin.

And any two of the following optional subjects:

Greek,
French,
German,
Icelandic,
Swedish,
Elementary Science (Botany and Physics).

Division of Examination Into Stages

The subjects of this curriculum of studies may be taken at any regular examination, at one time, or may be divided into two parts as below, which may be taken at successive examinations. The parts must, however, be taken in the order as here given:

Part I.—English Grammar, Composition, English History, Canadian History, Arithmetic, Algebra, Geometry, Elementary Latin, and any two of the following options: Elementary Greek, Elementary French, Elementary German, Elementary Icelandic, Elementary Swedish, Botany.

Part II.—English, Mathematics, Latin, and any two of the following options:—Greek, French, German, Icelandic, Swedish, Physics.

Candidates presenting themselves for the full examination at one time are not required to take the papers on Composition, Algebra, Geometry, Latin, Greek, French, German, Icelandic or Swedish of Part I. Matriculation.

Examination by Subjects

Candidates who are not prepared to write on the full course may offer themselves at any regular examination in the whole of any subject or subjects of *both* parts of this programme, such as all the English (including History), or all the Mathematics, etc., and on passing a satisfactory examination they shall receive credit therefor; but no such candidate taking the examination according to subjects shall be allowed to proceed with the First Year until he has been examined in all the subjects and has satisfied the examiners in all save one subject.

Standing Required

Fifty marks are assigned to each of the following papers of Part I. Matriculation: English History, Canadian History, Algebra, Geometry; to each of the remaining papers of Part I. Matriculation and to each of the papers of Part II. Matriculation one hundred marks are assigned.

A candidate, in order to pass in any paper in English, must have 50 per cent. in that paper. To pass in any other paper a candidate must have 40 per cent. of the marks in that paper. To obtain Second Class standing he must have 50 per cent. or more on the aggregate of the required papers. To obtain First Class standing, grade B, he must have 67 per cent. or more on the aggregate of the required papers. To obtain First Class standing, grade A, he must have 80 per cent. or more on the aggregate of the required papers. A standing under 50 per cent. is graded as Third Class.

The same minimum percentages are used in determining a candidate's standing in an individual subject as upon the whole examination.

Candidates taking the examination by subjects, in order to secure any credit, are required to pass in half the papers they elect and to attain an average standing of 40 per cent. on all the papers they elect.

Supplemental Examinations

Candidates who fail in not more than two papers of Part I. Matriculation, or who fail in not more than three papers, of which English History and Canadian History are two, or of which Algebra and Geometry are two, and candidates who fail in not more than two papers of Part II. Matriculation, receive standing on the examination but are required to take a supplemental examination in the papers in which they have failed.

Candidates who fail in more than two papers of Part I. Matriculation, except as above indicated, and candidates who fail in more than two papers of Part II. Matriculation, are required to take the whole examination again.

Supplemental examinations granted a candidate at a Part I. Matriculation examination may be taken when that candidate is writing on the Part II. Matriculation examination without additional fee.

Candidates, writing on Parts I. and II. Matriculation at the same examination, who fail in not more than three papers, or who fail in four papers, of which English History and Canadian History are two, receive standing on the examination but are required to take a supplemental examination in the papers in which they have failed.

Candidates, writing on Parts I. and II. Matriculation at the same examination, who fail in more than three papers, except as above indicated, are required to take the whole examination again.

Candidates, taking the examination by stages and candidates writing upon the whole examination at one time, who have failed in not more than two papers (or three papers in the special cases indicated above), or who, having failed in three papers, have subsequently reduced the number of their conditions to two, and candidates taking the examination by subjects, who have been examined in all the subjects and have satisfied the examiners in all save one subject, may, as conditioned students, offer themselves for the examination of the First Year; but such conditions must in each case be removed before the commencement of the Second Year. This regulation should be read in conjunction with the regulations relating to Supplemental Examinations.

The time allowed for each paper of the Matriculation Examination is three hours, except in the case of the English History, the Canadian History, the Algebra and the Geometry of Part I. Matriculation. In each of these subjects an hour and a half is allowed for the examination.

The Matriculation Examination is held in June of each year, commencing on the second Tuesday, and in September, commencing on the second Thursday. The examination in June is held in the University Building and at local centres as provided for under the University Rules and Regulations; the September examination is held at the University Building only.

PART I.

English and History

Grammar—LANG: Intermediate English Grammar.

Composition—HUNTINGTON: Elementary English Composition. (Macmillan & Co.)

The examination will presuppose the following:

(1) The formal rhetorical study of the sentence and the paragraph along the lines of the text-book indicated.

(2) Frequent practice in composition of a simple character, based on personal experiences, everyday events and objects and themes drawn from prescribed literature, reporting and editorials, letter writing, social and business. Attention to correct mechanical form will be demanded.

The following text is prescribed as affording models of style and material for work in composition. A general knowledge of its contents is required.

1914. GEORGE ELIOT: Silas Marner.

History—WRONG'S British Nation. CLEMENT'S History of Canada.

The English and History papers will be examined for spelling, and the examiners will include in their report a statement of the standing of each candidate in this regard. Students found deficient in this respect will be required to pass an examination in dictation before proceeding with their course.

N.B.—Students required to take an examination in Spelling will be examined on the following text-book:

COUTIE: Word Expositor and Spelling Book (T. Nelson & Sons), Part I., section 5, pages 64-81, inclusive.

Grammaire—RAGON : Grammaire Française. (Cours Moyen.)

Composition—Un essai sur un de plusieurs sujets indiqués par les examinateurs. L'écriture devra être lisible, l'orthographe et la ponctuation correctes, et la construction des phrases soignée. Il faudra aussi faire attention au plan général de la composition, à l'ordonnance des idées, et à la propriété des termes. Sa valeur dépendra plutôt de la qualité que de la quantité.

1914. *Modèles Français*—PROCÈS, Tomes II. et III.
Poésie.—Viennet, Tome II., pp. 382-383.
Andrieux, Tome III., pp. 283-288.
Nodier, Tome III., pp. 385-389.
Barbier, Tome III., pp. 558-561.

Prose.—Molière, Tome II., pp. 51-84.

Auteurs—DAUDET : "La Belle Nivernaise."
MOREAU : "La Souris Blanche."

Histoire—DRIOUX : Histoire d'Angleterre. BOURGEOIS : Histoire du Canada.

Mathematics

Arithmetic and Mensuration—Advanced Arithmetic, omitting progressions and logarithms (Lyman or Hamblin Smith, New Edition).

Algebra and Geometry—Hall and Knight's Elementary Algebra, Chaps. I.—XVII., inclusive, together with a knowledge of graphs sufficient for the solution of equations of the first degree.

Baker's Elementary Plane Geometry, Inductive and Deductive. Stress will be laid on ability to construct figures accurately.

In the demonstration of theorems the starting point shall be the definitions given in the prescribed texts.

Latin

Hagarty's Introductory Latin Grammar, pages 1 to 270.

Greek

Burgess and Bonner, Elementary Greek, to end of Exercise 40.

French

(*a*) *Grammar.*—New High School French Grammar (Fraser and Squair), page 1 to 134.

(*b*) *Composition.*—Translation of sentences and easy passages from English into French.

(*c*) *Sight Translation.*—Translation of unspecified passages from easy French authors. [For practice in sight translation, the following is recommended: Lazare, Lectures Faciles (Ginn & Co.)].

ENGLISH EQUIVALENT FOR FRENCH-SPEAKING STUDENTS.

Dulac et Bonnet, Grammaire Anglaise, pages 1 à 164.

German

(*a*) *Grammar.*—High School German Grammar (Van der Smissen and Fraser, 1909 or later edition), pages 1 to 133.

(*b*) *Composition.*—Translation of sentences and easy passages from English into German.

(*c*) *Sight Translation.*—Translation of unspecified passages from easy German authors. [For practice in sight translation the following is recommended: P. S. Allen. Herein (Holt & Co.)].

Icelandic

(*a*) *Grammar.*—Briem's Icelandic Grammar.

(*b*) *Composition.*—Translation of easy passages from English into Icelandic and from Icelandic into English. Dictation and orthographical exercises. Reproduction of stories and original composition.

(*c*) *Authors.*—Lesbok III. Collateral Reading: Fornsognpattir, edited by Porhallur Bjarnarson.

Swedish

Sundin's Swedish College Grammar. Translation of Swedish into English and English into Swedish. Writing Swedish from dictation Short essays. Selection from Modern Authors composed for Swedish Schools, Parts II. and IV.

Elementary Science—Botany

Germination.—A practical study of the pea, bean, sunflower, wheat and corn: Examination of the dry seeds as to external appearances. Examination of soaked seeds as to internal features. How does water enter the seed? Conditions favorable to germination: The living seed, warmth, moisture and air. Is light a necessary condition? The effect germinating seeds have upon the surrounding air. The early stages of the growth of root and shoot. Which develop the faster, the root or the shoot, and why? Root-hairs; root-cap. Origin and mode of root branching. The emergence of seedlings from the soil. The functions of the cotyledons. Bergen, Chapters 1, 2 and 3.

The Root and Its Work.—Origin: Primary, secondary, tertiary and adventitious. Medium—subterranean, aquatic (as illustrated by willow stems grown in water). Structure—as illustrated in the carrot, parsnip or dandelion. Function—anchoring the plant, absorbing food materials from the ground, storage. [In studying function, the living cell and osmotic action must be considered.] Bergen, Chapters 4 and 5.

The Stem and Its Work.—A study of the Manitoba maple twig as a substitute for the horse chestnut twig. Bergen, Chapter 6. The maple twig and the willow twig compared. Branching of twigs (bearing of this upon the habit of the plant as a whole). Classification of stems according to (1) amount of woody stem present, (2) duration of life, (3) direction or posture assumed by the stem, as trailing, twining, etc. Modified Stems: The onion, the potato, the cactus, the thorn, the strawberry and the smilax. Structure of the stem—a sufficient examination of cross-sections of exogenous and endogenous stems to bring out the following particulars: Bark, growth-layer, woody tissue, pith, medullary rays, growth in thickness, rings, heart-wood, sap-wood, knots. [In the above study of the stem structure, students are referred to the maple seedling or twig, and to the stem of the Indian corn.] Bergen, Chapters 6, 7, 8.

Buds—Structure, position, function. Students are referred to the cabbage head, the balm of Gilead, and the lilac. Bergen, Chapter 9.

The Green Leaf and Its Work.—Bergen, Chapters 10, 11, 12 and 13. Students will substitute the lilac leaf for the leaf of the horse chestnut. Microscopic work should be confined to the leaf surface.

The Flower.—The study of the following type flowers as illustrating the parts of a flower: Candytuft or any cruciferæ; pansy, silver weed or any rosaceæ; sweet pea, petunia and the dandelion, or any other compositæ. The function of the flower as a whole. The functions of the parts of the flower. Comparison of floral parts and foliage leaves. Fertilization: The development of the fertilized ovule into a ripened seed. The ecology of flowers: Pollination; inflorescence in relation to pollination, special reference given to *raceme, corymb, umbel, spike and head.* Bergen, Chapters 16 and 17.

Fruits and Seeds.—The study of the following typical fruits leading to a classification: Hawthorn or apple, rose, plum or cherry; tomato or grape; currant or gooseberry; cucumber. squash or pumpkin; raspberry or strawberry; cone or pineapple; pear, bean or caragana; larkspur, columbine or marsh-marigold; anemone or dandelion; wheat, corn or oats; stink weed or shepherd's purse; mustard or radish; plantain or pansy. Bergen, Chapters 18 and 19.

Ecology of Fruits.—Protection and dispersal of fruits and seeds (these to be illustrated by Manitoba examples). Bergen, Chapter 20.

The Struggle for Existence and the Survival of the Fittest.—Bergen, Chapter 21.

PART II.

English

1. *Composition.*—Huntington: Elements of English Composition.

The examination will presuppose the following:

(1) The formal rhetorical study of the sentence, the paragraph, the whole composition and the word along the lines of the text-book indicated; a study of the qualities of style.

(2) Frequent practice in formal essay work, based on current events, prescribed literature, etc.; debating, class criticism.

2. *Literature.*—Intelligent comprehension of the prescribed texts, and familiarity with their content will be required, and the candidate will be expected to have memorized some of the finest passages.

1914. Shakespeare: Macbeth.

Wordsworth: The Reverie of Poor Susan; Lines Written in Early Spring; Expostulation and Reply; The Tables Turned; "She Dwelt Among the Untrodden Ways"; "Three Years She Grew in Sun and Shower"; The Fountain; To the Small Celandine ("Pansies, lilies, kingcups, daisies"); To the Same Flower ("Pleasures newly found are sweet"); To the Daisy ("In youth from rock to rock"); To the Same Flower ("With little here to do or see"); The Green Linnet; The Solitary Reaper; "She Was a Phantom of Delight"; "I Wandered Lonely as a Cloud"; The Affliction of Margaret; Elegiac Stanzas Suggested by a Picture of Peele Castle, in a Storm; A Night-Piece; Nutting; Composed Upon an Evening of Extraordinary Splendour and Beauty; Resolution and Independence; To a Highland Girl Sonnets—Composed by the Seaside near Calais, 1802; September, 1802, near Dover; London, 1802; Composed upon Westminster Bridge; Inside of King's College Chapel; "The World Is Too Much With Us"; Mutability.

These selections may be had in "Wordsworth's Shorter Poems" (Macmillan's Pocket Classics).

The English papers will be examined for spelling, and the examiners will include in their report a statement of the standing of each candidate in this regard. Students found deficient in this respect will be required to pass an examination in dictation before proceeding with their course.

N.B.—Students required to take an examination in Spelling will be examined on the following text-book:

COUTIE: Word Expositor and Spelling Book (T. Nelson & Sons), Part I., section 5, pages 64-81, inclusive.

EQUIVALENTS FOR FRENCH-SPEAKING STUDENTS.

Au lieu de l'Anglais ci-dessus le Français pour les candidats de langue française sera comme suit:

1. *Rhétorique et Composition*—

(a) VÉREST: Manuel de Littérature.
Principes généraux, style, versification, pp. 1-12, 53-171; débit, pp. 188-205; genres intermédiaires en poésie, pp. 499-517.

(b) Un essai d'à peu près deux pages, grand format, sur un des sujets indiqués par les examinateurs. L'écriture devra être lisible, l'orthographe et la ponctuation correctes, et la construction des phrases soignée. Il faudra aussi faire attention au plan général de la composition, à l'ordonnance des idées, et à la propriété des termes. Sa valeur dépendra plutôt de la qualité que de la quantité.

On allouera 25% pour les principes de littérature et 75% pour l'essai.

2. *Littérature*—

1914. PROCÈS: Modèles Français, Tomes II. et III. *Extraits en prose*: X. de Maistre (II. pp. 327-341), A. Daudet (II. pp. 604-609, et III. pp. 679-683).
Extraits poétiques: Brizeux (II. pp. 503-510, et III. 533-542), Delavigne (II. pp. 435-449, et III. pp. 430-434), Coppée (II. pp. 609-621, et III. pp. 688-692), Corneille (III. pp. 17-29

AUTEURS: VEUILLOT: Corbin et d'Aubecourt.
RACINE: Les Plaideurs.

Mathematics

1. *Algebra*—Hall and Knight's Elementary Algebra, 8th edition, Chapters I. to XXXI., including graphs for equations of first and second degrees.

2. *Geometry*—Baker's Theoretical Geometry for Schools to page 209.

In demonstrating a proposition whose proof is given in the prescribed text no use shall be made of a proposition which in the said text follows the required proposition.

In the demonstration of theorems the starting point shall be the definitions given in the prescribed texts.

Latin

Translation into English of passages from prescribed texts.

Translation at sight (with the aid of vocabularies) of passages from some easy prose author. Candidates will be expected to have supplemented the reading of the prescribed texts by additional practice in the translation of Latin.

Grammatical questions on the passages from prescribed texts shall be set, and such other questions as arise naturally from the context.

Translation into Latin of sentences based upon the prescribed prose text.

The following are the prescribed texts:—

CAESAR: Bellum Gallicum, Book IV., Chapters 20-38, and Book V., Chapters 1-23.

VERGIL: Æneid, Book I., ll. 1-510.
Two papers as follows:—

(1) Vergil and Cæsar.

(2) Latin Grammar, Composition and Sight Translation.

(25% of the marks given on this paper will be given for Sight Translation).

[N.B.—Robertson and Carruthers' "Matriculation Latin" (1909 Edition) contains all the work prescribed for Part II. in Authors and Prose Composition.]

Greek

Translation into English of passages from prescribed texts.

Translation at sight (with the aid of vocabularies) of passages from some easy prose author. Candidates will be expected to have supplemented the reading of the prescribed texts by additional practice in the translation of Greek.

Grammatical questions on the passages from prescribed texts shall be set, and such other questions as arise naturally from the context.

Translation into Greek of sentences based upon the prescribed prose text.

The following is the prescribed text:—

XENOPHON, Anabasis I., Chapters 1-8, and Anabasis II. (omitting Chapters 3 and 4).

Two papers as follows:—

(1) Xenophon.

(2) Greek Grammar (Burgess and Bonner, "Elementary Greek," completed), Composition and Sight Translation. (25% of the marks given on this paper will be given for Sight Translation)

French

1. (*a*) *Grammar.*—High School French Grammar, Part II., pages 129 to 233, inclusive, with the associated exercises.

(*b*) *Composition.*—(1) Translation into French of short sentences as a test of the candidate's knowledge of grammatical forms and structure, and the formation in French of sentences of similar character; and (2) translation of easy passages from English into French.

(*c*) *Sight Translation.*—Translation of unspecified passages from easy French authors. [For practice in sight translation, Lazare's "Contes et Nouvelles, First Series" (Ginn & Co.) is recommended.]

2. *Authors.*—An examination on the following texts:
1914. DAUDET: La Belle Nivernaise (Ginn & Co.)
LABICHE: La Poudre aux Yeux (Heath & Co.)

ENGLISH EQUIVALENTS FOR FRENCH-SPEAKING STUDENTS.

Au lieu du Français ci-dessus l'Anglais pour les candidats de langue française sera comme suit:

1. (*a*) *Grammaire*—Dulac et Bonnet, Grammaire Anglaise, pages 165 à 284.

(*b*) *Composition*—(1) Traduire du français en anglais quelques phrases assez courtes, qui montrent que le candidat sait appliquer les règles de la grammaire; construire quelques phrases anglaises du même genre. (2) Traduire en anglais quelques passages faciles de prose française.

2. *Auteurs*—Version tirée d'auteurs anglais faciles à comprendre et non connus d'avance. Examen sur les auteurs prescrits:

DICKENS—A Christmas Carol.
IRVING—Sketch Book. (Hachette).

German

1. (*a*) *Grammar.*—High School German Grammar (Van der Smissen and Fraser (revised edition), pages 1-224.

(*b*) *Composition.*—(1) Translation into German of short English sentences as a test of the candidate's knowledge of grammatical forms and structure, and the formation in German of sentences of similar character; and (2) translation of easy passages from English into German.

(*c*) *Sight Translation.*—Translation of unspecified passages from easy German authors. [For practice in sight translation, "Herein," by P. S. Allen (Holt & Co.) is recommended.]

2. *Authors.*—An examination on the following texts:—

1914. Benedix: Eigensinn (Holt & Co.)
Blüthgen: Das Peterle von Nürnberg (Heath & Co.)

Icelandic

1. (*a*) *Grammar.*

(*b*) *Composition*—(1) Translation into Icelandic of idiomatic expressions and phrases in English. Construction of sentences in Icelandic as a test of knowledge of grammatical forms and structure; (2) translation of passages from Icelandic into English. Essays.

(*c*) *Sight Translation.*—Translation of unspecified passages from easy Icelandic Authors.

2. (*a*) *History of Icelandic Civilization.*

(*b*) *Authors.*

1914.—Melsted: Selections from Modern Icelandic Authors.
Jon Trausti: Leysing.

Swedish

1. (a) *Grammar*—Beckman's Advanced Swedish Grammar.

(b) *Composition*—Translation from Swedish into English and from English into Swedish of idiomatic expressions Writing of short essays.

2. *Authors*—Translation of easy passages from modern authors. Examination on the following texts:

1914.—FRANZÉN, Människans anlete, Afskedssång af beväringsmän; A. M. LENGREN, Pojkarna, Den glada festen, Porträtterna, Fröken Juliana; C. M. BELLMAN. Haga, Fiskarfänget; KARL DAVID AF WIRSEN, Sikars Brunn, Källan, Seltagande, Pelarskogen i San Paolo, Sverige: E. SEHLSTEDT, Snösparven, Våren kommer, Visa; Z.

TOPELIUS, Min moder, Vintergatan; P. VIKNER, Min moders testamente; B. E. MALMSTRÖM, Ur minnestal öfver E. G. Geijer, Angelika, Hvi suckar det så tungt uti skogen, Ödmjuken er; C. A. NICANDER, Vågen, Mitt lif, min sång, min död.

Elementary Science—Physics.

(a) Mann and Twiss, Part I., Chapters I. to V. The following experiments based on the text are recommended:

1. Density of solid from calculation of volume and weight.
2. Density of solid by immersion and weight.
3. Density of liquid using S. G. bottle or hydrometer.
4. Effects of force, gravity, inertia, momentum, kinetic energy.
5. Efficiency of a system of pulleys.
6. Forces acting on lever.
7. Measurements of moments.
8. Centre of gravity of rod or lamina.

9(a) Verification of Laws of stable and unstable equilibrium.

9. Efficiency of wheel and axle.
10. Mechanical advantage of given screw with handle.
11. Mechanical disadvantage of given bicycle.
12. Verification of parallelogram of forces.
13. Pressure is proportional to depth, multiplied by density. Pressure is equal in all directions and is independent of size and shape of containing vessel.
14. Measurement of gas pressure—in city mains or compressed air in bottle.
15. Relative density of liquids using balancing columns of liquids.
16. Verification of Boyle's law.
17. Make and use siphon.
18. Construction of barometer and calculation of air pressure in lbs. per sq. inch or gms. per sq. cm.
19. Prove air to have weight, using Air Pump and Globe, or flask and boiling water.
20. Use of Force Pump and Lift Pump deducing direction of flow at each stroke from position of valves.
21. Use Force Pump with and without air chamber to give steady flow.
22. Verification of Archimedes' Principle.
23. Specific gravity by Archimedes' Principle of solid
    - a. Lighter than water.
    - b. Heavier than water.

24. Construct a small windmill and study cause of its motion.

(b) Mann and Twiss, Part I., from Chapter VI. to the end. The following experiments, based on the text, are recommended:

Heat.

1. Expansion of solids, liquids and gases.
2. Convection. Study ventilation of building.
3. Comparison of conductivities of rods of different materials.
4. Comparison of properties of white and black surfaces with regard to reflection, radiation and absorption of heat.
5. Observations on effect of heat on cold water whilst being raised to boiling point.
6. Distillation of water.
7. Separation of water and alcohol by distillation.
8. Latent Heat of Fusion of Ice.
9. Cooling curve of Naphthalene moth-balls to find melting point.
10. Latent Heat of Steam.
11. Specific Heat of a Metal.
12. Experiments to show absorption of heat in evaporation.
13. Verification of relation between boiling point and pressure.
14. Produce heat by doing work. Use heat to do work.
15. Compare efficiencies of two burners or alcohol lamps.

Sound.

16. Pitch is proportional to the number of vibrations per sec.
17. Propagation of sounds in solids in air, not in vacuum.
18. Calculation of velocity of sound from echo.
19. Conversion of sound into visible vibrations.
20. Effect of length of string and tension on pitch.
21. Produce the phenomenon known as "beats."
22. Verify the relation between length of open and closed pipes and their pitch.

Light.

23. Rectilinear propagation. Pinhole camera.
24. Path of light through slab of glass. (Pin method.)
25. Path of light through prism. " "
26. Path of light through lens. " "
27. Focal lengths compared.

28. Conjugate foci.
29. Simple microscope and astronomical telescope.
30. Angles of reflection and incidence compared.
31. Position of object and image in plane mirror.
32. Verification of inverse square law and photometry.
33. Analysis of white light and comparison of refrangibilities of rays of different colors.
34. Synthesis of white light.
35. Selective absorption illustrated.
36. Diffusion of light in reflection and transmission.
37. Comparison of the speed of light in air with its speed in glass.

Magnetism.

38. Find properties of bar magnet. Make blue print chart of lines of force.
39. Verification of properties of suspended magnet with regard to other magnets and earth. (Compass and dip needle.)

Electricity.

40. Construct the following cells:
41. a. Simple. Polarisation to be observed.
    b. Gravity.
42. c. Leblanche.
43. Action of current on magnetic needle.
44. Conductors and non-conductors.
45. Solenoid—lines of force.
46. Solenoid with cores of soft iron.
    Action of needle. Lines of force.
47. Retentivity—comparison of permanent and electro magnets.
48. Construction of galvanometer, tangent form.
49. Resistance, heat, reduced current, shown by galvanometer.
50. Electric bell.
51. Electric telegraph.
52. Comparison of E. M. F. of cells of different types. Cells in series and parallel.
53. Motor—direct current.
54. Induced currents by magnet. Verification of Lenz's Law.
55. Induced currents by currents.
56. Dynamo—Alternating.
57. Dynamo—Direct and Motor alternating to be used.
58. Induction coil, construction and use.
59. Telephone to be taken apart and put together and used.

60. Electroplating of cent with silver.
61. Use of Ammeter and Voltmeter to verify ohms law.
62. Construction of a one ohm resistance coil.
63. Use of coil to measure unknown resistance.
64. Resistance of lamps in parallel and series.
65. E. M. F. of cells in parallel and series.
66. Measure watts consumed by small motor, electric lamp or electrolytic cells.

N.B.—It is suggested that the work prescribed under (a) be done in the second year of the Matriculation Course, and that prescribed under (b) in the third year. The examination in Physics will be held only at the end of the third year.

Matriculation for Medicine

Subjects of Examination

All candidates at the Matriculation Examination for Medicine must take the following fixed subjects:

English.
History.
Mathematics (Arithmetic, Algebra and Geometry).
Latin.
Elementary Science (Botany and Physics).

and one of the following optional subjects*:

French.
German.

Division of Examination

The subjects enumerated above may be taken in one examination at one time, or in two parts, at successive examinations, as outlined for Arts Matriculation, or by subjects or groups of subjects as in the case of Arts Matriculation.

Scope of Work and Standing Required

In the case of each of the subjects of this examination the work prescribed is the same as that for the corresponding subject of Parts I. and II. of the Arts Matriculation Examination, and the same standard is required to entitle the candidate to pass.

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*The additional optional language will be required at the examinations of 1914 only of Part I. Matriculation Candidates. Students who have already taken Part I. Matriculation for Medicine under the old regulations may take Part II. in 1914, without preparing themselves on the additional foreign language. But in 1915 and succeeding years all Medical Matriculation Candidates must comply with the new regulations.

Accuracy in Spelling is required. Students found deficient in this respect will be required to pass an examination in dictation before they will be allowed to proceed with their course.

N.B.—Students required to take an examination in Spelling will be examined on the following text-book:

COUTIE: Word Expositor and Spelling Book (T. Nelson & Sons), Part I., section 5, pages 64-81, inclusive.

Supplemental Examinations

The same regulations respecting Supplemental Examinations prevail as in the case of Arts Matriculation, *except that only fully matriculated students shall be allowed to present themselves for any higher examination.**

General Regulations

Each paper of the Matriculation Examination for Medicine, except those in English History, Canadian History, Algebra and Geometry of Part I. Matriculation, is of three hours' duration. The time allowed for the papers in the above-mentioned subjects is one and a half hours.

The Matriculation Examination for Medicine shall be held twice a year, viz.: in June, beginning on the second Tuesday, and in September, beginning on the second Thursday.

Equivalent Examinations

In place of the above Matriculation Examination the University has agreed to accept the Matriculation of the College of Physicians and Surgeons of the Provinces of Quebec and Ontario; the Medical Students' registration certificate of the Medical Council of Great Britain and Ireland.

Non-professional Second-Class Teachers' Certificates of Manitoba, Ontario, Saskatchewan and Alberta, also the Ontario High School Intermediate and Junior Leaving Examination Certificates, are recognized as equivalent to Medical Matriculation in so far as the subjects covered are the same.

Holders of certificates of educational value from other institutions than those mentioned will receive such standing as the Council of the University may see fit to grant.

A Bachelor of Arts of any University in His Majesty's Dominions is admitted to the study of medicine without further examination.

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*The old regulation permitting the holder of a Second Class Certificate to proceed conditioned in Latin holds good in 1913.

Matriculation for Engineering

Subjects of Examination

All candidates at the Matriculation Examination for Engineering take in regular course the following fixed subjects:

English.
History.
Mathematics (Arithmetic, Algebra, Geometry, and Trigonometry).
Elementary Science (Botany, Physics and Chemistry).

and one of the following optional subjects:

Latin.
Greek.
French.
German.

Division of Examination

The subjects enumerated above are regularly taken in three parts, at successive examinations, according to the plan outlined below; or they may be taken subject by subject (in which case History is attached to English as forming with it one subject), or by groups of subjects, as in the case of Arts Matriculation; and, in special cases, Part III. may be combined with Parts I. and II., or with Part II., on the conditions laid down in a foot-note below.

PART I.

English, as for Part I., Arts Matriculation.
History, as for Part I., Arts Matriculation.
Mathematics, as for Part I., Arts Matriculation, with a minimum of 50% required on each paper.
Botany, as for Part I., Arts Matriculation.
The optional language selected, as for Part I., Arts Matriculation.

PART II.

English, as for Part II., Arts Matriculation.
Mathematics, as for Part II., Arts Matriculation, with a minimum of 50% required on each paper.
Physics, as for Part II., Arts Matriculation.

The optional language selected, as for Part II., Arts Matriculation.

Chemistry—High School Chemistry (revised edition). (Copp, Clark Co.)

Note—There will be no examination on Chemistry in Part II. The work of this year is intended as an introduction to the work of Part III.

PART III.

English.*

1. *Composition and Prose Literature.*

The writing of an essay of not less than five hundred words on one of a number of subjects, some of which shall be based on the selections prescribed for prose literature.

All the following points will be considered in marking the composition:—Elegance; force; clearness. Plan (unity, sequence, proportion); paragraph structure, unity, sequence; sentence, structure; choice of words.

Text—Huntington's Elements of Composition.

Modern English Prose (Carpenter & Brewster), with special attention to the following selections:—

Byzantium	Gibbon
The Yosemite Valley	Whitney
St. Mark's	Ruskin
The Plains of Patagonia	Hudson
Wee Willie Winkie	Kipling
The Cask of Amontillado	Hudson
Ethan Brand	Hawthorne
Markheim	Stevenson
The Civil War	Macaulay
Queen Elizabeth	Green
The Origin of the Yosemite Valley	Whitney
On a Piece of Chalk	Huxley
Glacier Ice	Tyndall
Sweetness and Light	Arnold
The Pathetic Fallacy	Ruskin
Knowledge Viewed in Relation to Professional Skill	Newman
The American Scholar	Emerson
Nil Nisi Bonum	Thackeray
The Hero as Poet	Carlyle
An Apology for Idlers	Stevenson

2. *History of English Literature and English Verse.*
English Literature. Long (Ginn & Co.) Pages 452-560.
English Poetry, Its Principles and Progress. Galey and Young (Macmillan). Pages 252-330.

MATHEMATICS.

1. *Algebra.*
Chapters 32 to 39, inclusive; Chapters 42, 43 and 44.
Text-book—Hall and Knight's Elementary Algebra, 8th edition. (Macmillan & Co.)

2. *Geometry.*

Book 5, and propositions 1, 2, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20 in the Appendix of Baker's "Geometry for Schools" (Theoretical). (Educational Book Co., Ltd.)
Analytic Geometry of point, line and circle for rectangular axes. (Baker's Analytic Geometry for Beginners.)

3. *Trigonometry.*

Pages 1 to 207, inclusive, Hall and Knight's Trigonometry. (Macmillan & Co.)

CHEMISTRY.*

Chemistry—Elements of Inorganic Chemistry. Remsen's Briefer Course.

Students passing this examination will, in view of their standing in English and Chemistry, be exempted from these subjects of the First Year in Engineering.

Each paper of the examination is considered as a separate subject in determining failures, except in the cases of English History, Canadian History, Algebra and Geometry of Part I. Matriculation, where the same special provision applies as in the case of Arts Matriculation.

Accuracy in Spelling is required. Students found deficient in this respect will be required to pass an examination in dictation before they will be allowed to proceed with their course.

N.B.—Students required to take an examination in Spelling will be examined on the following text-book:

COUTIE: Word Expositor and Spelling Book (T. Nelson & Sons), Part I., section 5, pages 64-81, inclusive.

Supplemental Examinations

The same regulations respecting Supplemental Examinations prevail as in the case of Arts Matriculation. All Matriculation conditions must be removed before the commencement of the Second Year.

General Regulations

Each paper of the Matriculation for Engineering, except those in English History, Canadian History, Algebra and Geometry of Part I. Matriculation is of three hours' duration. The time allowed for the papers in the above-mentioned subjects is one and a half hours.

* In special cases, subjects marked thus may be omitted from the Matriculation Examination and taken in the first year of the course in Engineering, in which case the Mathematics of Part III. may be taken along with the subjects of Part II. or of Parts I. and II.

Matriculation for Law

In order to enter upon the course of study for the degree in Law, a student must pass a Matriculation examination, the subjects of which are the same as those required for Matriculation for Arts. The same standards and regulations prevail as in Arts Matriculation.

Entrance requirements for the course in Pharmacy and the course in Commercial Education are outlined on pages 232 and 238.

Curricula in Arts

Curricula in Arts

The University of Manitoba confers two degrees in Arts, viz., Bachelor of Arts (B.A.) and Master of Arts (M.A.). The following are the requisites for proceeding in course to admission to these degrees:

I.—Bachelor of Arts

The requirements for Matriculation for Arts are set forth in detail on pages 23 to 39.

After having matriculated, the student of Arts is required to pass four examinations before being admitted to the degree of Bachelor of Arts, viz., the First, the Second, the Third and the Fourth Year Examinations.

FIRST YEAR

Note 1.—All English-speaking students at the examination of the First Year shall take the following fixed subjects: English, Mathematics, Latin, History, and any two of the following options: Greek, Hebrew, French, German, Icelandic, Swedish, Physics.

Note 2.—L'examen de la première année pour les candidats de langue française comprend le Français, les Mathématiques, le Latin, l'Histoire, et deux quelconques des sujets suivants: le Grec, l'Anglais, l'Allemand, l'Islandais, le Suédois, la Physique.

Note 3.—Students intending to take the course in Mathematics or any of the divisions of the Natural and Physical Science Course in their Third Year, are strongly recommended to choose Physics as one of their options in the First Year.

For students of the First Year, classes are provided by the University only in the subject of Physics. Instruction in all other subjects must be obtained at one of the affiliated Colleges or at some other educational institution.

1. English.
    (a) Composition and Prose Literature (Course 1A, page 80.)
    (b) History of Literature and Verse. (Course 1B, Page 80.)

2. Français (pour les candidats de langue française).
    - (a) Composition et Littérature en Prose. (Voir Cours 3A, page 91.)
    - (b) Modèles Français et Poésie Dramatique. (Voir Cours 3B, page 91.)

3. Mathematics.
    - (a) Algebra. (Course 1, page 107.)
    - (b) Geometry. (Course 3, page 107.)
    - (c) Trigonometry. (Courses 2 and 4, page 107.)

4. Latin.
    - (a) Authors.
    - (b) Sight Translation.
    - (c) Composition.

    (First Term, Course 1A; Second Term, Course 1B; page 76.

5. History. (Courses 1A and 1B, page 106.)

6. Histoire (pour les candidats de langue française). (Cours 2A et 2B, page 106.)

7. Greek.
    - (a) Authors.
    - (b) Sight Translation.
    - (c) Composition.

    (First Term, Course 1A; Second Term, Course 1B; page 74.

8. Hebrew. (Courses 1A and 1B, page 78.)

9. French.
    - (a) Grammar, Composition, Dictation and Sight Translation.
    - (b) Authors.

(First Term, Course 1A; Second Term, Course 1B, page 90.)

10. Anglais (pour les candidats de langue française).
    - (a) Auteurs. (Cours 3A, page 82.)
    - (b) Grammaire, Composition, Dictée et Traduction à première vue. (Cours 3B, page 82.)

11. German.
    - (a) Grammar, Composition, Dictation and Sight Translation.
    - (b) Authors.

(First Term, Course 1A, page 95; Second Term, Course 1B, page 96.)

12. Icelandic.
    - (b) Grammar and Composition. } (Course 1, page 100.)
    - (a) Authors. }
13. Swedish. (Courses 1A and 1B, page 100.)
14. Physics. (Course 1, page 143.)

SECOND YEAR

Note 1.—All English-speaking students at the examination of the Second Year shall take the following fixed subjects: English, Philosophy, Latin, History, and any two of the following options: Greek, Hebrew, French, German, Icelandic, Swedish, Mathematics, Chemistry, Biology (Botany and Zoology), Geology, together with Astronomy.

Note 2.—L'examen de la deuxième année pour les candidats de langue française comprend le Français, la Logique, le Latin, l'Histoire, et deux quelconques des sujets suivants: le Grec, l'Anglais, l'Allemand, l'Islandais, le Suédois, les Mathématiques, et la Chimie.

Note 3.—Students intending to take the course in Mathematics or one of the divisions of the Course in Natural and Physical Science are recommended to choose as their options two of the following: Mathematics*, Chemistry†, Biology†, Geology and Astronomy. Before making their selection they are advised to consult the Chairman of the University Faculty.

For students of the Second Year, classes are provided by the University in the subjects of Mathematics, Chemistry, Botany, Zoology, Geology and Astronomy. Instruction in all other subjects must be obtained at one of the affiliated Colleges or at some other educational institution.

1. English.
    - (a) Composition and Prose Literature. (Course 2A, page 80.)
    - (b) History of Literature and Verse. (Course 2B, page 81.)
2. Français (pour les candidats de langue française).
    - (a) Composition et Rhétorique. (Cours 4A, page 91.)
    - (b) Littérature en Poésie et Prose. (Cours 4B, page 91.)

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*Mathematics is a prerequisite for Divisions A and B of the Course in Natural and Physical Science.

†Chemistry and Biology are prerequisites for Divisions D and E of the Course in Natural and Physical Science.

3. Philosophy.
   - (a) Logic. (Course 1A, page 101.)
   - (b) History of Philosophy. (Course 1B, page 101.)

4. Logique (pour les candidats de langue française). (Prèmier Terme, Cours 1A; Second Terme, Cours 1B, page 103.)

5. Latin.

(a) Authors. (b) Sight Translation. (c) Composition.	(First Term, Course 2A; Second Term, Course 2B; page 76.

6. History. (Courses 3A and 3B, page 106.)

7. Histoire (pour les candidats de langue française). (Cours 4A et 4B, page 106.)

8. Greek.

(a) Authors. (b) Sight Translation. (c) Composition.	(First Term, Course 2A; Second Term, Course 2B; page 74.)

9. Hebrew. (Courses 2A and 2B, page 78.)

10. French.
    - (a) Grammar, Composition, Dictation and Sight Translation.
    - (b) Authors.

(First Term, Course 2A; Second Term, Course 2B, page 90.)

11. Anglais (pour les candidats de langue française).
    - (a) Auteurs. (Cours 4A, page 82.)
    - (b) Grammaire, Composition, Dictée et Traduction à première vue. (Cours 4B, page 83.)

12. German.
    - (a) Grammar, Composition, Dictation and Sight Translation.
    - (b) Authors.

(First Term, Course 2A; Second Term, Course 2B, page 96.)

13. Icelandic.
    - (a) Grammar and Composition. } (Course 2, page 100.)
    - (b) Authors. }

14. Swedish. (Course 2A, page 100, and Course 2B, page 101.)

15. Mathematics.
    - (a) Algebra. (Course 10, page 138.)
    - (b) Trigonometry. (Course 11, page 138.)
    - (c) Solid Geometry. (Course 12, page 138.)
    - (d) Analytical Geometry. (Course 13, page 138.)

16. Chemistry. (Course 1, page 157.)

17. Biology.
    - (a) Botany. (Course 1, page 147.)
    - (b) Zoology. (Course 1, page 171.)

18. (a) Geology. (Course 1, page 150.)
    - (b) Astronomy. (Course 28, page 142.)

A candidate, in order to pass in any paper at the examination of the First or the Second Year must have 34 per cent. of the marks in that paper, and to pass the whole examination and obtain Third Class standing he must have 40 per cent. of the aggregate of the marks assigned. If he fail to obtain 40 per cent. he shall be required to take the whole examination again. To obtain Second Class standing he must have 50 per cent. of the aggregate of the marks assigned. To obtain First Class standing, grade B, he must have 67 per cent. of the aggregate of the marks assigned. To obtain First Class standing, grade A, he must have 80 per cent. of the aggregate of the marks assigned.

The standing of a candidate on an individual subject is determined on the same basis as his standing on the whole examination.

Each paper of the examination of the First or Second Year is regarded as a separate subject in considering failures.

Candidates who have failed in not more than two papers in the examination of the First Year or the Second Year may, as conditioned students, proceed with their course, with the view of subsequently obtaining the full standing of the year; but all conditions from the examination of the First Year must be removed before the commencement of the Third Year, and all conditions from the examination of the Second Year must be removed before the commencement of the Fourth Year. This regulation should be read in conjunction with the regulations relating to Supplemental Examinations.

A student passing the examination of the First Year with First Class grade "B" or higher standing may obtain from the Department of Education for Manitoba a First Class non-professional Teacher's Certificate. A student passing with Second Class standing may obtain a Second Class non-professional Certificate. In each case the applicant for a certificate must satisfy the requirements of the Department in Bookkeeping, Agriculture, Music, Drawing and Botany.

No student shall be allowed to present himself for examination in Physics of the First Year, or in Chemistry, Mathematics, Botany, Zoology, Geology or Astronomy of the Second Year, who does not present from the University Faculty, or from an affiliated college where such work is done in the college, a certificate of having attended 75 per cent. of the lectures delivered in said subject. This regulation, however, shall not affect any non-collegiate candidate for examination.

THIRD AND FOURTH YEARS

After completing the First and Second Years, a student may proceed to the degree of Bachelor of Arts by pursuing any one of the following Courses, viz.:

(a) A General Course.

(b) A Group Course, made up on the following plan. Any two *majors*, or a *major* and two *minors**, from the following list—Greek (major and minor), Latin (major and minor), Hebrew (major), English (major and minor), French (major and minor), German (major and minor), Philosophy (major and two minors)†, History (major only), and Political Economy (major and minor).

(c) A Course in Mathematics.
(d) A Course in Political Economy and Mathematics.
(e) A Course in Natural and Physical Science.

(Any one of five divisions.)

GENERAL COURSE

THIRD YEAR

All English-speaking students shall take the following subjects: English, History or Political Economy, Philosophy; one of the languages: Latin, Greek, French, German, Hebrew; one of the following: Latin (if not already chosen), Greek (if not already chosen), French (if not already chosen), German (if not already chosen), Hebrew (if not already chosen), Scripture, Mathematics (if not already taken in the Second Year), Physics (if not already taken in the First Year).

Note 2.—Les candidats de langue française substitueront le Français à l'Anglais dans les sujets fixes et l'Anglais au Français dans les sujets facultatifs.

1. English. (Courses 8 and 9, page 84; or Courses 3 and 4, page 111.)
2. Français (pour les candidats de langue française).
3. Philosophy. (Courses 2 and 3, page 101.)
4. Philosophie (pour les candidats de langue française). (Cours 2 et 3, page 103.)
5. Political Economy. (Course 3, page 122.)
6. Economie Politique (pour les candidats de langue française).
7. History. (Course 3, page 119.)
8. Histoire (pour les candidats de langue française).
9. Latin. (Courses 4 and 8, page 77.)
10. Greek. (Courses 5 and 8, page 75.)

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* A student pursuing the work of a Group Course must in the Fourth Year continue the subjects begun in the Third Year, except that a student taking in the Third Year a major and two minors may, in the Fourth Year, for the two minors substitute a major in one of them.

†In all subjects but Philosophy the major and minor courses overlap, and may not be taken together, but in Philosophy they are distinct and separate, and a student desiring to devote himself entirely to philosophical studies may make up a year's work by taking the major and both minors provided.

11. French. (Courses 5 and 8, page 92.)
12. Anglais (pour les candidats de langue française). (Cours 5, page 83.)
13. German. (Courses 4 and 6, pages 96 and 97.)
14. Hebrew. (Courses 1A and 1B; or, if Hebrew has already been taken in the First Year and the Second Year, Course 3A, page 78.)
15. Scripture. (First Term, Course 6; Second Term, Course 8, page 79.)
16. Mathematics. (Courses 10, 11, 12 and 13, page 138.)
17. Physics. (Course 1, page 143.)

FOURTH YEAR

All English-speaking students shall take the following subjects: English, Political Economy or History, Philosophy; one of the languages: Latin, Greek, French, German, Hebrew; one of the following: Latin (if not already chosen), Greek (if not already chosen), French (if not already chosen), German (if not already chosen), Hebrew (if not already chosen), Scripture, Mathematics (if not already taken in the Second Year or the Third Year), Astronomy, together with Geology (if not already taken in the Second Year).

Note 2.—Les candidats de langue française substitueront le Français à l'Anglais dans les sujets fixes et l'Anglais au Français dans les sujets facultatifs.

1. English. (Courses 15 and 16, pages 87 and 88; or Courses 3 and 4, page 114.)
2. Français (pour les candidats de langue française).
3. Philosophy. (Courses 2 and 3, page 101.)
4. Philosophie (pour les candidats de langue française). (Cours 2 et 3, page 103.)
5. Political Economy. (See page 125.)
6. Economie Politique (pour les candidats de langue française).
7. History. (Course 4, page 120.)
8. Histoire (pour les candidats de langue française).
9. Latin. (Courses 10 and 13, pages 77 and 78.)
10. Greek. (Courses 10 and 13, page 75.)
11. French. (Courses 14 and 16, page 94.)
12. Anglais (pour les candidats de langue française). (Cours 5, page 83.)
13. German. (Courses 11 and 14, page 139.)
14. Hebrew. (Courses 2A and 2B; or, if three years of Hebrew have already been taken, Course 4A, page 79.)

15. Scripture. (First Term, Course 6; Second Term, Course 8, page 79.)
16. Mathematics. (Courses 10, 11, 12 and 13, page 138.)
17. Physics. (Course 1, page 143.)
18. Astronomy. (Course 28, page 142.)
19. Geology. (Course 1, page 150.)

COURSES IN GREEK

THIRD YEAR

Major—

1. Epic and Pastoral Poetry. (Course 3, page 74.)
2. Tragedy and Sight Translation. (Course 4, page 74.)
3. History. (Course 6, page 75.)
4. Satire and Sight Translation. (Course 7, page 75.)
5. Philosophy. (Course 9, page 75.)
6. Prose Composition.

N.B.—Students will be examined on Courses 1 and 2 in December.

Minor—

1. Tragedy and Sight Translation. (Course 4, page 74.)
2. Satire and Sight Translation. (Course 7, page 75.)
3. Prose Composition or Philosophy. (Course 9, page 75.)

N.B.—Students will be examined on Course 1 in December.

General—

1. Tragedy and Sight Translation. (Course 5, page 75.)
2. Satire and Sight Translation. (Course 8, page 75.)

N.B.—Students will be examined on Course 1 in December.

FOURTH YEAR

Major—

1. Comedy and Sight Translation. (Course 10, page 75.)
2. History. (Course 11, page 75.)
3. Philosophy and Sight Translation. (Course 12, page 75.)
4. Philosophy. (Course 14, page 76.)
5. Prose Composition.
6. Antiquities.

N.B.—Students will be examined on Courses 2 and 3 in December.

Minor—

1. Comedy and Sight Translation. (Course 10, page 75.)
2. Philosophy and Sight Translation. (Course 12, page 75.)
3. Prose Composition or Antiquities.

N.B.—Students will be examined on Course 2 in December.

General—

1. Comedy and Sight Translation. (Course 10, page 75.)
2. Philosophy and Sight Translation. (Course 13, page 75.)

N.B.—Students will be examined on Course 2 in December.

COURSES IN LATIN

THIRD YEAR

Major—

1. Epic and Elegiac Poetry and Sight Translation. (Course 3, page 76.)
2. Lyric Poetry. (Course 5, page 77.)
3. History. (Course 6, page 77.)
4. Oratory and Sight Translation. (Course 7, page 77.)
5. Prose Composition.
6. Antiquities.

N.B.—Students will be examined on Courses 3 and 4 in December.

Minor—

1. Epic and Elegiac Poetry and Sight Translation. (Course 3, page 76.)
2. Oratory and Sight Translation. (Course 7, page 77.)
3. Prose Composition or Antiquities.

N.B.—Students will be examined on Course 2 in December.

General—

1. Epic and Elegiac Poetry and Sight Translation. (Course 4, page 77.)
2. Oratory and Sight Translation. (Course 8, page 77.)

N.B.—Students will be examined on Course 2 in December.

FOURTH YEAR

Major—

1. Latin of the Empire and Sight Translation. (Course 9, page 77.)
2. History. (Course 11, page 77.)

3. Satire and Epigram and Sight Translation. (Course 12, page 78.)
4. Philosophy. (Course 14, page 78.)
5. Comedy. (Course 15, page 78.)
6. Prose Composition.

N.B.—Students will be examined on Courses 3 and 4 in December.

Minor—

1. Latin of the Empire and Sight Translation. (Course 9, page 77.)
2. Satire and Epigram and Sight Translation. (Course 12, page 78.)
3. Prose Composition or Comedy. (Course 15, page 78.)

N.B.—Students will be examined on Course 2 in December.

General—

1. Latin of the Empire and Sight Translation. (Course 10, page 77.)
2. Satire and Epigram and Sight Translation. (Course 13, page 78.)

N.B.—Students will be examined on Course 2 in December.

COURSES IN HEBREW

THIRD YEAR

Major—

1. Genesis.
2. Deuteronomy.
3. History.
4. Judges. (Course 3B, page 79.)
5. Ruth.
6. Introduction to Hebrew Bible.

N.B.—Students will be examined on Courses 1, 2 and 3 in December.

General—

1. Hebrew Grammar. (Courses 1A and 1B, page 78.)

Or

2. Genesis.
3. History. (Course 3A, page 78.)
4. Judges.
5. Introduction to Hebrew Bible.

N.B.—Students will be examined on Course 1 or Courses 2 and 3 in December.

FOURTH YEAR

Major—

1. Amos.
2. Samuel.
3. History.
4. Psalms. (Course 4B, page 79.)
5. History.
6. Archaeology.
7. Canon.

N.B.—Students will be examined on Courses 1, 2 and 3 in December.

General—

1. Hebrew Grammar. (Courses 2A and 2B, page 78.)

Or

2. Amos.
3. History.
4. Psalms. (Course 4A, page 79.)
5. History.

N.B.—Students will be examined on Course 1 or Courses 2 and 3 in December.

COURSES IN ENGLISH

THIRD YEAR

Major—

1. Chaucer. (Course 6, page 83; or Course 1, page 110.)
2. Spenser. (Course 7, page 84; or Course 2, page 110.)
3. The English Drama. (Course 8, page 84; or Course 3, page 111.)
4. The Drama of Shakespeare. (Course 9, page 84; or Course 4, page 111.)
5. Milton. (Course 10, page 84; or Course 5, page 111.)
6. Eighteenth Century Literature. (Course 11, page 85; or Course 6, page 111.)

or History of the English Language. (Course 12, page 86; or Course 7, page 112.)

N.B.—Students will be examined on Courses 1, 2 and 3 in December.

Minor—

1. The English Drama. (Course 8, page 84; or Course 3, page 111.)
2. The Drama of Shakespeare. (Course 9, page 84; or Course 4, page 111.)
3. Milton. (Course 10, page 84; or Course 5, page 111.)

N.B.—Students will be examined on Course 1 in December.

General—

1. The English Drama. (Course 8, page 84; or Course 3, page 111.)
2. The Drama of Shakespeare. (Course 9, page 84; or Course 4, page 111.)

N.B.—Students will be examined on Course 1 in December.

FOURTH YEAR

Major—

1. Wordsworth and Coleridge. (Course 13, page 86; or Course 1, page 113.)
2. Shelley, Keats and Byron. (Course 14, page 87; or Course 2, page 113.)
3. Tennyson. (Course 15, page 87; or Course 3, page 114.)
4. Browning. (Course 16, page 88; or Course 4, page 114.)
5. The English Novel. (Course 17, page 88; or Course 5, page 115.)
6. Nineteenth Century Literature. (Course 18, page 89; or Course 6, page 115.)

or Old English. (Course 19, page 89; or Course 7, page 116.)

N.B.—Students will be examined on Courses 1, 2 and 3 in December.

Minor—

1. Tennyson. (Course 15, page 87; or Course 3, page 114.)
2. Browning. (Course 16, page 88; or Course 4, page 114.)
3. The English Novel. (Course 17, page 88; or Course 5, page 115.)

N.B.—Students will be examined on Course 1 in December.

General—

1. Tennyson. (Course 15, page 87; or Course 3, page 114.)
2. Browning. (Course 16, page 88; or Course 4, page 114.)

N.B.—Students will be examined on Course 1 in December.

COURSES IN FRENCH

THIRD YEAR

Major—

1. Corneille and La Fontaine, and the History of French Literature to 1600. (Course 6, page 92.)
2. Racine and Boileau. (Course 7, page 92.)
3. Molière and La Bruyère. (Course 9, page 93.)
4. Saint-Simon, Mme. de la Fayette, Bossuet and Pascal. (Course 10, page 93.)
5. History of France to end of Seventeenth Century and History of Seventeenth Century Literature. (Course 12, page 93.)
6. Sight Translation, Composition and Conversation.

N.B.—Students will be examined on Courses 1, 2 and 3 in December

Minor—

1. Corneille and La Fontaine, and the History of French Literature to 1600. (Course 6, page 92.)
2. Molière and La Bruyère. (Course 9, page 93.)
3. History of France to end of Seventeenth Century, and History of Seventeenth Century Literature: Sight Translation, Composition and Conversation (Course 11, page 93.)

N.B.—Students will be examined on Course 1 in December.

General—

1. Corneille and La Fontaine, and the History of French Literature to 1600 (in outline): Composition, Sight Translation. (Course 5, page 92.)
2. Molière and La Bruyère: Composition, Sight Translation and Dictation. (Course 8, page 92.)

N.B.—Students will be examined on Course 1 in December.

FOURTH YEAR

Major—

1. Voltaire, Diderot, Beaumarchais and Chateaubriand. (Course 13, page 93.)
2. Mme. de Staël, Hugo, and Alfred de Musset. (Course 15, page 94.)
3. Hugo, George Sand and Balzac. (Course 17, page 94.)
4. Ponsard, Rostand, Dumas, Daudet and Maupassant. (Course 18, page 95.)
5. History of France in the Eighteenth and Nineteenth Centuries and Old French. (Course 20, page 95.)
6. Composition, Sight Translation and Conversation.

N.B.—Students will be examined on Courses 1 and 2 in December.

Minor—

1. Mme. de Staël, Hugo, and Alfred de Musset. (Course 15, page 94.)
2. Hugo, George Sand and Balzac. (Course 17, page 94.)
3. History of France in the Eighteenth and Nineteenth Centuries: Composition, Sight Translation and Conversation. (Course 19, page 95.)

N.B.—Students will be examined on Course 1 in December.

General—

1. Mme. de Staël and Hugo: Composition and Sight Translation. (Course 14, page 94.)
2. Hugo, George Sand and Balzac: Composition, Sight Translation and Dictation. (Course 16, page 94.)

N.B.—Students will be examined on Course 1 in December.

COURSES IN GERMAN

THIRD YEAR

Major—

1. Klopstock, Herder and Wieland. (Course 3, page 96.)
2. Lessing and History of Literature. (Course 5, page 97.)
3. Goethe and History of Literature. (Course 7, page 97.)
4. Goethe, Schiller and Burger. (Course 8, page 97.)
5. History of Germany to 1786, and Middle High German. (Course 10, page 98.)
6. Composition, Sight Translation and Conversation.

N.B.—Students will be examined on Courses 1 and 2 in December.

Minor—

1. Lessing and History of Literature. (Course 5, page 97.)
2. Goethe and History of Literature. (Course 7, page 97.)
3. History of Germany to 1786; Composition, Sight Translation and Conversation. (Course 9, page 97.)

N.B.—Students will be examined on Course 1 in December.

General—

1. Lessing and Outline of History of German Literature to 1740; Composition and Sight Translation. (Course 4, page 96.)
2. Goethe, and Outline of History of German Literature from 1740 to 1786; Composition and Sight Translation. Course 6, page 97.)

N.B.—Students will be examined on Course 1 in December.

FOURTH YEAR

Major—

1. Goethe. (Course 12, page 98.)
2. Kleist, Grillparzer and Hebbel. (Course 13, page 98.)
3. Schiller, Heine and History of Literature. (Course 15, page 99.)
4. Sudermann, Hauptmann and Meyer. (Course 16, page 99.)
5. History of Germany from 1786, and Middle High German. (Course 18, page 99.)
6. Composition, Sight Translation and Conversation.

N.B.—Students will be examined on Courses 1 and 2 in December.

Minor—

1. Goethe. (Course 12, page 98.)
2. Schiller and Heine, and History of Literature. (Course 15, page 99.)

3. History of Germany from 1786; Composition, Sight Translation and Conversation. (Course 17, page 99.)

N.B.—Students will be examined on Course 1 in December.

General—

1. Goethe; Composition and Sight Translation. (Course 11, page 98.)
2. Schiller and Heine; Outline of the History of German Literature since 1786; Composition and Sight Translation. (Course 14, page 98.)

N.B.—Students will be examined on Course 1 in December.

COURSES IN POLITICAL ECONOMY

THIRD YEAR

Major—

1. Economic Theory.
2. The History and Theory of Foreign and Colonial Trade Policy.
3. Economic History—Mediaeval.

or 4. Political Science.

Minor—

1. Economic Theory.
2. Economic History—Mediaeval.

General—

1. Economic Theory.
2. Economic History—Mediaeval.

(See pages 122 to 123.)

FOURTH YEAR

Major—

1. Economic Theory.
2. The Economic Functions of the State and Public Finance.
3. Economic History—Modern.

or 4. Political Science.

Minor—

1. Economic Theory.
2. Economic History—Modern.

General—

1. Economic Theory.
2. Economic History—Modern.

(See pages 124 to 125.)

COURSES IN HISTORY

THIRD YEAR

Major—

1. British Political History from the Roman Period to the Reform Bill.
2. British Constitutional History from the Roman Period to the Reform Bill.

(See page 117.)

General—

1. British History and Colonial Expansion from 1485.

(See page 119.)

FOURTH YEAR

Major—

1. A Period of General History. The period selected for 1913-1914 is 1763-1879.
2. A Period of Canadian History. The period from which certain phases will be selected for study during 1912-1913 is 1763-1867.

(See page 118.)

General—

1. Canadian History from the Period of Discovery to Confederation, with special reference to the period 1763 to 1867.

(See page 120)

COURSES IN PHILOSOPHY

THIRD YEAR

Major—

1. History of Philosophy. (Courses 6A and 6B, pages 101 and 102.)
2. Metaphysics. (Courses 8A and 8B, page 102.)
3. Psychology. (Course 12, page 102.)

Minor A—

1. Logic. (Courses 11A and 11B, page 102.)
2. Metaphysics. (Course 9B, page 102.)

Minor B—

1. Metaphysics. (Course 9A, page 102.)
2. Political Science. (Course 15, page 103.)

General—

1. Metaphysics. (Course 2, page 101.)
2. Psychology. (Course 3, page 101.)

FOURTH YEAR

Major—

1. History of Philosophy. (Courses 7A and 7B, page 102)
2. History of Religion. (Course 14, page 103.)
3. Metaphysics. (Course 10, page 102.)
4. Psychology. (Course 12, page 102.)

Minor A—

1. Logic. (Courses 11A and 11B, page 102.)
2. Metaphysics. (Course 9B, page 102.)

Minor B—
1. Metaphysics. (Course 9A, page 102.)
2. Political Science. (Course 15, page 103.)

General—
1. Metaphysics. (Course 2, page 101.)
2. Psychology. (Course 3, page 101.)

COURSE IN LATIN PHILOSOPHY

THIRD YEAR

(A) For the Examination of 1914 and every alternate year hereafter:

1. Logica. (Course 5, page 104.)
2. Metaphysica. (Course 6, page 104.)
3. History of Philosophy. (Course 7, page 104.)
   Ou Histoire de la Philosophie (pour les candidats de langue française). Cours 7, page 104.)
4. Physics. (Course 11, page 105.)
   Ou Physique (pour les candidats de langue française). (Cours 11, page 105.)

(B) For the Examination of 1915 and every alternate year thereafter:

1. Philosophia Moralis. (Courses 4 Aand 4B, page 104.)
2. History of Philosophy. (Courses 8A and 8B, page 105.)
   Ou Histoire de la Philosophie (pour les candidats de langue française). Cours 8A et 8B, page 105.)
3. Political Economy. (Courses 9A and 9B, page 105.)
   Ou Economie Politique (pour les candidats de langue française. (Cours 9A et 9B, page 105.)
4. Chemistry. Course 10, page 105.)
   Ou Chimie (pour les candidats de langue française). (Cours 10, page 105.)

FOURTH YEAR

(A) For the Examination of 1914 and every alternate year thereafter:

1. Logica. (Course 5, page 104.)
2. Metaphysica. (Course 6, page 104.)
3. History of Philosophy. (Course 7, page 104.)
   Ou Histoire de la Philosophie (pour les candidats de langue française). Cours 7, page 104.)
4. Physics. (Course 11, page 105.)
   Ou Physique (pour les candidats de langue française). (Cours 11, page 105.)

(B) For the Examination of 1915 and every alternate year thereafter:

1. Philosophia Moralis. (Courses 4A and 4B, page 104.)
2. History of Philosophy. (Courses 8A and 8B, page 105.)
   Ou Histoire de la Philosophie (pour les candidats de langue française). Cours 8A et 8B, page 105.)
3. Political Economy. (Courses 9A and 9B, page 105.)
   Ou Economie Politique (pour les candidats de langue française). (Cours 9A et 9B, page 105.)
4. Chemistry. Course 10, page 105.)
   Ou Chimie (pour les candidats de langue française). (Cours 10, page 105.)

COURSE IN MATHEMATICS

THIRD YEAR

1. Algebra. (Course 14, page 139.)
2. Determinants and Theory of Equations. (Course 15, page 139.)
3. Plane Trigonometry. (Course 16, page 139.)
4. Spherical Trigonometry. (Course 17, page 139.)
5. Analytical Geometry. (Course 18, page 139.)
6. Modern Synthetic Geometry—Plane and Solid. (Course 19, page 140.)
7. Differential and Integral Calculus. (Course 20, page 140.)
8. Physics. Course 2, page 144.)
9. Physics. (Course 6, page 145.)
10. Problems on 1, 2, 3, 4, 5, 6 and 7.

FOURTH YEAR

1. Differential Calculus. (Course 21, page 140.)
2. Integral Calculus. (Course 22, page 141.)
3. Differential Equations. (Course 23, page 141.)
4. Statics. (Course 24, page 141.)
5. Dynamics. (Course 25, page 141.)
6. Finite Differences. (Course 26, page 142.)
7. Theory of Probability and Life Contingencies. (Course 27, page 142.)
8. Physics. (Course 3, page 144.)
9. Physics. (Course 7, page 145.)
10. Astronomy. (Course 8, page 137.)
11. Problems on 1, 2, 3, 4, 5, 6 and 7.

COURSE IN POLITICAL ECONOMY AND MATHEMATICS

(This course can ordinarily be taken only by students who have already taken the Mathematics option of the Second Year.)

THIRD YEAR

Political Economy—

The *major* course in Political Economy of the Third Year, see page 122.

Mathematics—

1. Algebra. (Course 14, page 139.)
2. Determinants and Theory of Equations. (Course 15, page 139.)
3. Differential and Integral Calculus. (Course 20, page 140.)

FOURTH YEAR

Political Economy—

The *major* course in Political Economy of the Fourth Year, see page 124.

Mathematics—

1. Differential Calcalus. (Course 21, page 140. Both terms.)
2. Integral Calculus. (Course 22, page 141. Both terms.)
3. Differential Equations. (Course 23, page 141. First term.)
4. Finite Differences. (Course 26, page 142.)
5. Theory of Probability and Life Contingencies. (Course 27, page 142.)

COURSES IN NATURAL AND PHYSICAL SCIENCE

DIVISION A.

THIRD YEAR

1. Mathematics. (Course 20, page 140.)
2. Physics. (Course 2, page 144; and Course 6, page 145.)
3. Chemistry. (Course 3, page 158; and Chemical Laboratory, page 161.)
4. Geology and Mineralogy. (Courses 1, 2, 3 and 4, pages 150 to 153.)

FOURTH YEAR

1. Mathematics. (Courses 23, 24 and 25, page 141.)
2. Physics. (Course 3, page 144; and Course 7, page 145.)
3. Chemistry. (Course 2, page 158; and Chemical Laboratory, page 161.)
   Or Geology and Mineralogy. (Course 5, page 153; and Course 6, page 154.)

DIVISION B.

THIRD YEAR

1. Mathematics. (Course 17, page 139; Courses 19 and 20, page 140.)
2. Chemistry. (Course 2, page 158; and Chemical Laboratory, page 161.)
3. Physics. (Course 2, page 144; and Course 6, page 145.)
4. Astronomy. (Course 28, page 142.)

FOURTH YEAR

1. Mathematics. (Course 18, page 139; and Courses 23, 24 and 25, page 141.)
2. Physics. (Course 3, page 144; and Course 7, page 145.)
3. Astronomy. (Course 8, page 137.)

DIVISION C.

THIRD YEAR

1. Physics. (Course 2, page 144; and Course 6, page 145.)
2. Chemistry. (Course 2, page 158; and Chemical Laboratory, page 161.)
3. *Any two* of—
   - (a) Botany. (Course 1, page 147.)
   - (b) Geology and Mineralogy. (Courses 1, 2, 3 and 4, pages 150-153.)
   - (c) Zoology. (Courses 4 and 5, pages 173-174.)

FOURTH YEAR

1. Physics. (Course 3, page 144; and Course 7, page 145.)
2. Chemistry. (Course 3, page 158; Course 6, page 160; and Chemical Laboratory, page 161.)
3. *Any one* of—
   - (a) Botany. (Course 2, page 148.)
   - (b) Geology and Mineralogy. (Course 5, page 153; and Course 6, page 154.)
   - (c) Zoology. (Courses 6 and 7, page 175.)

(The one selected must have been taken in the Third Year.)

DIVISION D.

THIRD YEAR

1. Physics. (Course 2, page 144; and Course 6, page 145.)
2. Chemistry. (Course 2, page 158; and Chemical Laboratory, page 161.)
3. Botany. (Course 1, page 147; or Zoology (Courses 4 and 5, pages 173-174.)
4. Physiology. (Course 1, page 164; and Practical Physiology, page 167.)

FOURTH YEAR

1. Physiology. (Course 2, page 165; and Practical Physiology, page 167.)
2. Chemistry. (Course 3, page 158; Course 6, page 160; and Chemical Laboratory, page 161.)
3. Physics. (Course 3, page 144; and Course 7, page 145.)
   Or Botany. (Course 2, page 148.)
   Or Zoology. (Courses 6 and 7, page 175.)

DIVISION E.

THIRD YEAR

1. Botany. (Course 1, page 147.)
2. Zoology. (Courses 4 and 5, pages 173-174.)
3. Geology and Mineralogy. (Courses 1, 2, 3 and 4, pages 150-153.)
4. Chemistry. Course 2, page 158; and Chemical Laboratory, page 161.)

FOURTH YEAR

1. Botany. (Course 2, page 148.)
2. Zoology. (Courses 6 and 7, page 175.)
3. Geology. (Courses 5 and 6, and 8 and 9, pages 153-155.)

Note 1.—The following subjects of the Second Year are laid down as pre-requisites for the work of the above divisions of the Course in Natural and Physical Science, as indicated:

For Division A, Mathematics; for Division B, Mathematics; for Division C, no specified pre-requisite; for Divisions D and E, Chemistry and Biology.

II.—Master of Arts

The following are the requirements for the degree of Master of Arts (M.A.):

1. The candidate must be—

(a) A Bachelor of Arts in course of the University of Manitoba of at least three years' standing; or

(b) A Bachelor of Arts who has been admitted *ad eundem gradum* in the University of Manitoba, of at least three years' standing in the university in which his undergraduate course was taken.

2. He must prepare, and submit to the Board of Studies, a thesis on some literary or scientific subject under the following conditions—

(a) The subject of the thesis must first be submitted to the Board of Studies for approval.

(b) No paper previously read before any association, or which may have been published in any way, will be accepted as a thesis.

(c) General topics, involving no special research, will not be accepted.

(d) The thesis must be accompanied by footnotes containing definite references to all authorities quoted or used.

(e) At least four months must elapse between the time of approval of the subject and the handing in of the thesis.

(f) The thesis, if accepted, becomes the property of the University.

(g) At least six type-written or printed copies of the thesis must be forwarded to the Registrar, together with the degree fee, not later than March 1st of the year in which the degree is to be granted.

For the session 1914-1915 and following sessions, the practice of awarding the Master of Arts degree for a thesis only will be discontinued, and the above regulations will be replaced by the following:—

A Bachelor of Arts of the University of Manitoba may be admitted to the degree of Master of Arts under the following conditions:

1. He must have completed one year's study over and above that required for the Bachelor's degree, under the direction of the University of Manitoba or an affiliated College of the University. This course of study shall embrace one principal and one subordinate related subject, to be approved by the Board of Studies. At least half of the student's time shall be devoted to his major subject. At least three-quarters of his work shall be distinctly graduate in character, and any classes to which undergraduates are regularly admitted, shall not be deemed graduate for the purposes of the courses for the Master's degree.*

2. He must pass an examination on the above course of study.

3. He must submit an acceptable thesis on a subject connected with his major course. The subject of the same will be approved by the Board of Studies on recommendation of two or more instructors in the department in which the subject falls. The thesis may be submitted either at or subsequent to the time of examination.

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* Graduates in Arts who are instructors, research fellows, or demonstrators for an entire session, in the University or in an affiliated College, may be allowed by the Board of Studies to substitute such instructional work for an amount of study not exceeding a minor.

Curriculum in Science.

Curriculum in Science.

The University of Manitoba confers one degree in Science, viz., Bachelor of Science (B.Sc.). The following are the requisites for proceeding in course to admission to this degree:

The requirements for Matriculation for Science are set forth in detail on pages 23 to 39.

After having matriculated, the student of Science is required to pass four examinations before being admitted to the degree of Bachelor of Science, viz., the First, the Second, the Third, and the Fourth Year Examinations.

FIRST YEAR

N.B.—Students of the First Year in Science shall take the following subjects:—English, Mathematics and History; one of the following: Latin, French, German, Physics; one of the following: Greek, French (if not already taken), German (if not already taken), Icelandic, Swedish.

1. English.
    - (a) Composition and Prose Literature. (Course 1A, page 80.)
    - (b) History of Literature and Verse. (Course 1B, page 80.)

2. Mathematics.
    - (a) Algebra. Course 1, page 107.)
    - (b) Geometry. (Course 3, page 107.)
    - (c) Trigonometry. (Courses 2 and 4, page 107.)

3. History. (Courses 1A and 1B, page 106.)

4. Latin.

(a) Authors.
(b) Sight Translation.
(c) Composition.
(First Term, Course 1A; Second Term, Course 1B; page 76.)

5. French.

(a) Grammar, Composition, Dictation and Sight Translation.

(b) Authors.

(First Term, Course 1A; Second Term, Course 1B, page 90.)

6. German.

(a) Grammar, Composition, Dictation and Sight Translation.

(b) Authors.

(First Term, Course 1A, page 95; Second Term, Course 1B, page 96.)

7. Physics. (Course 1, page 143.)

8. Greek.

(a) Authors.
(b) Sight Translation.
(c) Composition.
(First Term, Course 1A; Second Term, Course 1B; page 74.)

9. Icelandic.

(a) Authors.
(b) Grammar and Composition.
(Course 1, page 100.)

10. Swedish.

(a) Authors. (Course 1B, page 100.)

(b) Grammar and Composition. (Course 1A, page 100.)

SECOND YEAR

N.B.—Students of the Second Year in Science shall take the following subjects:—English, French, or, if already taken in the First Year, Scientific French, German, or, if already taken in the First Year, Scientific German, Physics, Practical Physics, Chemistry, Practical Chemistry, Mathematics I., or two of the following: Zoology, Botany, Geology and Mathematics II.

1. English, two hours a week (to be outlined).
2. French, as for First Year, above.
3. Scientific French, two hours a week (to be outlined).
4. German, as for First Year, above.
5. Scientific German, two hours a week (to be outlined).
6. Physics, two hours a week.
7. Practical Physics, three hours a week.
8. Chemistry, three hours a week.
9. Practical Chemistry, six hours a week.
10. Mathematics I., five hours a week.
11. Zoology, two hours lectures and two hours practical work.
12. Botany, two hours lectures and two hours practical work.
13. Geology, two hours lectures and two hours practical work.
14. Mathematics II., three hours a week.

THIRD YEAR

N.B.—Students of the Third Year in Science shall take the following subjects:—Scientific French (if not already taken), Scientific German (if not already taken), and any three of the following subjects: Mathematics, Astronomy, Physics, Chemistry, Botany, Zoology, Geology, Physiology, Anatomy. These three subjects should be selected with a view to continuing two of them in the Fourth Year.

FOURTH YEAR

N.B.—Students of the Fourth Year in Science shall take two subjects selected from one of the following groups:—

A.—Mathematics, Physics, Chemistry, Geology.
B.—Botany, Zoology, Geology, Chemistry.
C.—Zoology, Physiology, Anatomy.
D.—Physiology and Chemistry, or Botany, or Physics.

The two subjects selected must have been taken already in the Third Year.

Undergraduate Courses in Arts and Science in Detail

GREEK

FIRST YEAR

Instruction in Greek is provided only in the affiliated Colleges.

1A. (a) LUCIAN: Charon.
(b) *Sight Translation.*
(c) *Composition.* Pitman's Greek Prose Composition, (Macmillan & Co.), 1-20. Simple Continuous Prose.

1B. (a) HOMER: Odyssey IX.
(b) *Sight Translation.*
(c) *Composition.* Pitman's Greek Prose Composition 1-44. Simple Continuous Prose.

SECOND YEAR

2A. (a) PLATO: Laches.
(b) *Sight Translation.*
(c) *Composition.* Sidgwick's Greek Prose, Part I.

2B. (a) HOMER: Iliad III. (Monro, Clarendon Press.)
EURIPIDES: Medea.
(b) *Sight Translation.*
(c) *Composition.* Sidgwick's Greek Prose, Part I.

THIRD YEAR

3 (Major Course only)
HOMER: Iliad, Books I., VI., XVIII., XXII.
Odyssey, Books VII., IX., XI., XII.
THEOCRITUS: Idylls I., II., VIII., XV. (Snow.)

4 (Major Course and Minor Course.)
AESCHYLUS: Prometheus Bound.
SOPHOCLES: Antigone, Oedipus Tyrannus.
Sight Translation.

5 (General Course only.)
AESCHYLUS: Prometheus Bound.
SOPHOCLES: Antigone.
Sight Translation.

6. (Major Course only.)
Greek History, 500 B.C.-431 B.C.
(a) GROTE: History of Greece, Chapters 35-48.
(b) HERODOTUS: Book VII.
THUCYDIDES: Book I.

7. (Major Course and Minor Course.)
LUCIAN: Somnium, Charon, Vitarum Auctio, Piscator. (Allinson: Ginn & Co.)
Sight Translation.

8 (General Course only.)
LUCIAN: Somnium, Charon, Vitarum Auctio (Allinson: Ginn & Co.)
Sight Translation.

9. (Major Course and Minor Course.)
PLATO: Gorgias.

FOURTH YEAR

10. (Major Course, Minor Course and General Course.)
ARISTOPHANES: Birds and Clouds.
Sight Translation.

11. (Major Course only.)
Greek History, 431 B.C.-338 B.C.
(a) GROTE: History of Greece, Chapters 49-65.
(b) THUCYDIDES: Books II. and VII.
(c) DEMOSTHENES: Philippic I.
Olynthiacs.

12. (Major Course and Minor Course.)
PLATO: Republic, Books I.-IV.
Sight Translation.

13. (General Course only.)
PLATO: Republic, Books I. and II.
Sight Translation.

14. (Major Course only.)
ARISTOTLE: Ethics, Books I.-III.

LATIN

Instruction in Latin is provided only in the affiliated Colleges.

FIRST YEAR

1A. (a) CICERO: Pro Lege Manilia.
(b) *Sight Translation.*
(c) *Composition.* Bradley Arnold's Latin Prose Composition (Exercises 1-15). Simple Continuous Prose.

1B. (a) HORACE: Selected Odes, omitting 9, 14, 31. (Wickham, Clarendon Press.)
(b) *Sight Translation.*
(c) *Composition.* Bradley Arnold's Latin Prose Composition (Exercises 1-36). Simple Continuous Prose.

SECOND YEAR

2A. (a) CICERO: De Senectute.
(b) *Sight Translation.*
(c) *Composition.* Bradley Arnold's Latin Prose Composition (Exercises 37-50). Continuous Prose

2B. (a) HORACE: Epistles, Book I., omitting 3, 5, 8, 9, 17, 18 (Shuckburgh).
(b) *Sight Translation.*
(c) *Composition.* Bradley Arnold's Latin Prose Composition (Exercises 37 to end). Continuous Prose.

THIRD YEAR

3. (Major Course and Minor Course.)
VERGIL: Aeneid I., II., IV., VI.
OVID: Metamorphoses, Selections 8, 10, 13, 17, 19, 21, 23, 25, 28. (Allen and Greenough: Ginn and Co.)
Sight Translation.

4. (General Course only.)
   VERGIL: Aeneid II., IV.
   OVID: Metamorphoses, Selections 8, 10, 13, 17, 19, 21, 23, 25, 28. (Allen and Greenough: Ginn and Co.)
   Sight Translation.

5. (Major Course only.)
   HORACE: Odes I., II., III.
   CATULLUS: Nos. 1-64. (Simpson.)

6. (Major Course only.)
   Roman History, 146 B.C.-50 B.C.
   (a) MOMMSEN: History of Rome, Book V., Chaps. 1-8.
   (b) CICERO: Select Letters, Parts 1 and 2. (Watson.)

7. (Major Course and Minor Course.)
   CICERO: Pro Archia.
   Pro Milone.
   Second Philippic.
   Sight Translation.

8. (General Course only.)
   CICERO: Pro Archia.
   Pro Milone.
   Sight Translation.

FOURTH YEAR

9. (Major Course and Minor Course.)
   Latin of the Empire: Prose Selections.
   (Gillies and Cumming: Bell & Sons.)
   Sight Translation.

10. (General Course only.)
   Latin of the Empire: Pliny, Tacitus, Apuleius, Augustine. (Gillies and Cumming: Bell & Sons.)
   Sight Translation.

11. (Major Course only.)
   Roman History, 49 B.C.-37 A.D.
   (a) MOMMSEN: Book V., Chap. 9 to end.
   SHUCKBURGH: Augustus.
   (b) CICERO: Select Letters, Parts 3 and 5. (Watson.)
   TACITUS: Annals I. and II.

12. (Major Course and Minor Course.)
HORACE: Satires, Book I. (omitting 2 and 8), and Book II., 1, 5 and 6.
JUVENAL: Satires 1, 3, 5, 7 and 10.
MARTIAL: Select Epigrams, Books I.-IV. (Post).
Sight Translation.

13. (General Course only.)
HORACE: Satires, Book I. (omitting 2 and 8).
MARTIAL: Select Epigrams, Books I.-IV. (Post)
Sight Translation.

14. (Major Course only.)
LUCRETIUS: Books I., III. and V.

15. (Major Course and Minor Course.)
PLAUTUS: Captivi.
TERENCE: Adelphi.

HEBREW AND SCRIPTURE

Instruction in Hebrew and Scripture is provided only in the affiliated Colleges.

1A. *Hebrew Grammar.* (First Term.)
HARPER: Hebrew Method and Manual, Exercises 1 to 10, inclusive.

1B. *Hebrew Grammar.* (Second Term.)
HARPER: Hebrew Method and Manual, Exercises 11 to 25, inclusive.

2A. *Hebrew Grammar.* (First Term.)
HARPER: Hebrew Method and Manual, Exercises 32 to 37, inclusive.

2B. *Hebrew Grammar.* (Second Term.)
HARPER: Hebrew Method and Manual, Exercises 38 to end.

3A. (a) Genesis, Chapters I., II., III., VI., VII., VIII., IX., with special attention given to questions of history, syntax and grammar.
History—Kent's "The United Kingdom."
(b) Judges, Chapters I., II., III., IV., V., VI., with special attention given to questions of history, syntax and grammar.
A. S. Geden, "Introduction to the Hebrew Bible."

3B. (a) Genesis, Chapters I., II., III., VI., VII., VIII., IX., with special attention given to questions of history, syntax and grammar.
Deuteronomy, Chapters I., II., III., IV., with special attention given to questions of history, syntax and grammar.
History—Kent's "The United Kingdom."
(b) Judges, Chapters I., II., III., IV., V., VI., with special attention given to questions of history, syntax and grammar.
Ruth, with special attention given to questions of history, syntax and grammar.
A. S. Geden, "Introduction to the Hebrew Bible."

4A. (a) Amos, with special attention given to questions of history, syntax and grammar.
History—Kent's "The Divided Kingdom."
(b) Psalms I.-XVI., inclusive, with special attention given to questions of history, syntax and grammar.
History—Kent's "The Babylonian, Persian and Greek Periods."

4B. (a) Amos, with special attention given to questions of history, syntax and grammar.
Samuel I., Chapters I., II., III., IV., V., VI., with special attention given to questions of history, syntax and grammar.
History—Kent's "The Divided Kingdom."
(b) Psalms I.-XVI., inclusive, with special attention given to questions of history, syntax and grammar.
History—Kent's "The Babylonian, Persian and Greek Periods."
Archaeology—Price's "The Monuments and the Old Testament."
Ryle's "Canon of the Old Testament."

5. *Old Testament*: Job (Cambridge Bible).

6. *Old Testament*: Isaiah, Chapter XL. to end (Cambridge Bible).
Kent: "History of Babylonian, Persian and Greek Periods," pages 1-98, inclusive.

7. *New Testament*: I. and II. Thessalonians (Cambridge Bible).

8. *New Testament*: Acts (Cambridge Bible).
Ramsay: "Paul, Traveller and Roman Citizen."

ENGLISH

FIRST YEAR

Instruction in English of the First and Second Years is given only in the affiliated Colleges; instruction in English of the Third and Fourth Years is given both in the University and in the affiliated Colleges.

1A. *Composition and Prose Literature.*

(1) *Composition.*—The writing of at least four original compositions during each term, with an aggregate of at least 2,000 words for each term.

(2) *Prose Literature.*—The study of the selections in Carpenter and Brewster's Modern English Prose. (The Macmillan Co.)

(a) First Term, pages 1-105.
(b) Second Term, pages 106-214.

(NOTE.—A maximum of twenty marks will be allowed for the essay work of each term. This is class work, and will be examined by the instructor. A maximum of thirty marks will be allowed for the examination paper in Prose Literature at each of the examinations. The marks for essay work will not be counted in determining the award of scholarships.)

1B. *History of English Literature and English Verse.*

(1) *History of English Literature*—
LONG: History of English Literature. (Ginn & Co.)
(a) First Term, Chapters I.-IV.
(b) Second Term, Chapters V. and VI.

(2) *English Verse*—
SHAKESPEARE:
(a) First Term—As You Like It.
(b) Second Term—Richard the Second.

(NOTE.—A maximum of twenty marks will be allowed for the History of Literature, and a maximum of thirty marks for the Shakespeare at the examination of each term.)

SECOND YEAR

2A. *Composition and Prose Literature.*

(1) *Composition.*—The writing of at least two original compositions during each term, with an aggregate of at least 1,500 words for each term.

(2) *Prose Literature.*—The study of the selections in Carpenter and Brewster's Modern English Prose. (The Macmillan Co.)

(a) First Term—Pages 215-313.
(b) Second Term—Pages 314-463.

(NOTE.—A maximum of twenty marks will be allowed for the essay work of each term. This is class work, and will be examined by the instructor. A maximum of thirty marks will be allowed for the examination paper in Prose Literature at each of the examinations. The marks for essay work will not be counted in determining the award of scholarships.)

2B. *History of English Literature and English Verse.*

(1) *History of English Literature*—

LONG: History of English Literature. (Ginn & Co.)
(a) First Term—Chapters VII.-IX.
(b) Second Term—Chapters X. and XI.

(2) *English Verse*—

(a) First Term—
MILTON: L'Allegro; Il Penseroso; Lycidas.
DRYDEN: Alexander's Feast.
POPE: The Rape of the Lock.
GRAY: Elegy Written in a Country Churchyard.
GOLDSMITH: The Deserted Village.
BURNS: Tam o' Shanter.

(b) Second Term—
WORDSWORTH: Lines Composed a few miles above Tintern Abbey; Ode to Duty; The following Sonnets: London, 1802, Composed upon Westminster Bridge, "It is a beauteous evening," "The world is too much with us," "Scorn not the Sonnet."
COLERIDGE: The Ancient Mariner.
BYRON: The Prisoner of Chillon; Sonnet—On Chillon; Stanzas from Childe Harold's Pilgrimage.
SHELLEY: Ode to the West Wind; To a Skylark.

KEATS: Ode to a Nightingale; Ode on a Grecian Urn; Sonnets—On First Looking into Chapman's Homer, On the Grasshopper and Cricket.

TENNYSON: Oenone; The Lady of Shalott; Ulysses.

BROWNING: Home Thoughts, from Abroad; Home Thoughts, from the Sea; My Last Duchess; Andrea del Sarto.

ARNOLD: Rugby Chapel; Dover Beach.

(The above poems are contained in "The Principles and Progress of Poetry," edited by Gayley and Young, and published by the Macmillan Co.)

(Note—A maximum of twenty marks will be allowed for the History of Literature, and a maximum of thirty marks for the English Verse at the examination of each term.)

FIRST YEAR

(French-speaking Students)

3A. *Auteurs.*

(a) *Premier terme*—
MACAULAY: Warren Hastings.

(b) *Second terme*—
NEWMAN: Saul, Early Days of David, The Tartar and the Turk, The Turk and the Saracen, The Past and Present of the Ottoman.

3B. *Grammaire, Composition, Dictée et Traduction à première vue.*

(a) *Premier terme*—
DULAC ET BONNET: Grammaire Anglaise, pages 285 à 356.

(b) *Second terme*—
DULAC ET BONNET: Grammaire Anglaise, pages 356 à la fin.

SECOND YEAR

(French-speaking Students)

4A. *Auteurs.*

(a) *Premier terme*—
NEWMAN: Dream of Gerontius.

(b) *Second terme—*

NEWMAN: What is a University?; University Life; Athens; The Schoolmen; The Strength and Weakness of Universities; Poetry With Reference to Aristotle's Poetics; The Second Spring.

4B. *Grammaire et Composition. Dictée et Traduction à première vue.*

(a) *Premier terme—*

BROOKS: English Composition (Book I.), pages 1 à 160.

(b) *Second terme—*

BROOKS: English Composition (Book I.), pages 160 à la fin.

THIRD AND FOURTH YEARS

(French-speaking Students)

5. (*Cours général seulement.*)

Auteurs—

(a) LAMB—

Essays in "Gateway Series," edited by Genung.

The following essays: Mackery End, Poor Relations, Old China, Grace Before Meat, The Praise of Chimney-Sweepers, Dream-Children.

(b) TENNYSON—

In Memoriam.

THIRD YEAR

6. (Major Course only.)

Chaucer.

GEOFFREY CHAUCER—

The Canterbury Tales: The Prologue; The Tale of Chanticleer and the Fox; The Pardoner's Tale.

(One volume, "Chaucer, Selected Poems," edited by Emerson and published by Macmillan & Co.)

Required critical reading—

CHAUCER, by A. W. Ward (English Men of Letters)

7. (Major Course only.)
  Spenser.
    Edmund Spenser—
      The Faerie Queene, Book I.
      The Shephearde's Calendar: February; April; May; October.
      Astrophel.
      (One volume, edited by Herford, Macmillan & Co.)
      The Fower Hymnes: An Hymn in Honor of Love; An Hymn in Honor of Beauty; An Hymn of Heavenly Love; An Hymn of Heavenly Beauty.
      ("The Oxford Spenser," edited by Smith and Selincourt, and published by the Oxford University Press.)
    Required critical reading—
      Spenser, by Dean Church (English Men of Letters).

8. (Major Course, Minor Course, and General Course.)
  The English Drama.
    Udall: Ralph Roister Doister.
    Marlowe: Doctor Faustus.
    Jonson: Every Man in His Humour.
    Beaumont and Fletcher: Philaster.
    Webster: The Duchess of Malfi.
    (These plays may be obtained separately in the "Temple Dramatists" series, published by Dent.)

9. (Major Course, Minor Course, and General Course.)
  The Drama of Shakespeare.
    William Shakespeare—
      Romeo and Juliet.
      Julius Caesar.
      Hamlet.
      Antony and Cleopatra.
      The Tempest.
    Required critical reading—
      Introduction to Shakespeare, by MacCracken and others. (Macmillan & Co.)

10. (Major Course and Minor Course.)
  Milton.
    John Milton—
      Comus.
      The Sonnets.

Paradise Lost. Books I., II., III., IV.
Prose of Milton (pp. 1-159), edited by Richard Garnett (Walter Scott).

Required critical reading—
Milton (English Men of Letters), by MARK PATTISON.

11. (Major Course only.)

Eighteenth Century Literature.

(a) Prose—

BUNYAN: Pilgrim's Progress, Part I.
SWIFT: Gulliver's Travels, Books I. and II.
ADDISON: Sir Roger de Coverley papers, from "The Spectator."
BURKE: Conciliation with America.
(These may each be obtained separately in Macmillan's Pocket Classics.)

(b) Ballads—

The selections in "Old English Ballads," edited by Armes, in Macmillan's Pocket Classics.

(c) Poetry—

POPE: Essay on Man.
Epistle to Dr. Arbuthnot.

JOHNSON: The Vanity of Human Wishes.

GRAY: Ode on a Distant Prospect of Eton College.
Hymn to Adversity.
Elegy Written in a Country Churchyard.
The Progress of Poesy.

COLLINS: Ode to Evening.
The Passions.
Ode on the Popular Superstitions of the Highlands of Scotland.

BLAKE: Introduction to "Songs of Innocence."
The Lamb.
The Defiled Sanctuary.
The Tiger.
From Milton.
To the Queen.

BURNS: Mary Morrison.
The Twa Dogs.
To a Mouse; To a Mountain Daisy; John Anderson, My Jo; Tam O'Shanter; Highland Mary; Scots Wha Hae; Is there for Honest Poverty.

N.B.—The above poems are all contained in Bronson's English Poems of the Eighteenth Century. (University of Chicago Press.)

Required critical reading—

The Beginnings of the English Romantic Movement, by W. L. Phelps (Ginn & Co.).

12. (Major Course only.)*

History of the English Language.

Lectures on the growth and structure of the English language.

Text-book: "Growth and Structure of the English Language," by Otto Jesperson (G. E. Stechert, New York).

Books of reference:

Henry Bradley: The Making of English (Macmillan).

O. F. Emerson: *History of the English Language* (Macmillan).

FOURTH YEAR

13. (Major Course only.)

Wordsworth and Coleridge.

(a) William Wordsworth—

We Are Seven, Lucy Gray, The Pet Lamb, Ruth, Hart-Leap Well, The Affliction of Margaret, The Leech Gatherer, Michael, My Heart Leaps Up, To the Daisy, The Green Linnet, Three Years She Grew in Sun and Shower, To the Cuckoo, To a Skylark, She Was a Phantom of Delight, To a Highland Girl, Stepping Westward, The Solitary Reaper, At the Grave of Burns, Yarrow Unvisited, Yarrow Visited, Yarrow Revisited, Ode to Duty, Ode on the Intimations of Immortality, Influence of Natural Objects, Lines Composed a Few Miles Above Tintern Abbey, The French Revolution (as it appeared to enthusiasts at its commencement), Nutting, To Mary Wordsworth. (Poems of Wordsworth, edited by Matthew Arnold, "Golden Treasury" Series. Macmillan.)

(b) Samuel Taylor Coleridge—

The Golden Book of Coleridge, Parts II.-III. (pp. 95 179), edited by Stopford A. Brooke. (J. M. Dent & Co.)

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* Alternative for Course 11, Eighteenth Century Literature.

Required critical reading—
  "Preface" to Poems of Wordsworth, by MATTHEW ARNOLD.
  Wordsworth (English Men of Letters), by F. W. H. MEYERS.
  Coleridge (English Men of Letters), by H. D. TRAILL

14. (Major Course only.)
Shelley, Keats, and Byron.
(a) PERCY BYSSHE SHELLEY—
Alastor, Lines Written Among the Euganean Hills, Hymn to Intellectual Beauty, Ode to the West Wind, The Sensitive Plant, The Cloud, To a Skylark, Ode to Liberty, Adonais.
(These poems are all contained in the volume, edited by Alexander, published by Ginn & Co.)
(b) JOHN KEATS—
Sonnets: Written on the Day that Leigh Hunt Left Prison; On First Looking into Chapman's Homer; On the Grasshopper and the Cricket; Addressed to Haydon; Lamia; Ode to a Nightingale; Ode on a Grecian Urn; Lines on the Mermaid Tavern; Ode on Melancholy; La Belle Dame sans Merci.
(These poems are all contained in the volume, edited by Bates, published by Ginn & Co.)
(c) LORD GEORGE GORDON BYRON—
Drama: Manfred.
Lyrics: Pages 287-304 in text.
(Selections from Byron, edited by Carpenter, published by Henry Holt & Co., New York.)

15. (Major Course, Minor Course, and General Course.)
Tennyson.
ALFRED LORD TENNYSON—
(a) Shorter Poems: The Lady of Shalott; The Palace of Art; The Lotos-Eaters; Ulysses; The Gardener's Daughter; The Vision of Sin; Ode on the Death of the Duke of Wellington; Crossing the Bar. (Macmillan's Pocket Classics.)
(b) In Memoriam. (Macmillan's Pocket Classics.)
(c) Idylls of the King: The Coming of Arthur; Lancelot and Elaine; The Holy Grail; Guinevere; The Passing of Arthur. (Macmillan's Pocket Classics.)
Required critical reading—

The Introduction in "Tennyson, His Art and Relation to Modern Life," by STOPFORD A. BROOKE, pp. 7-52. (Isbister.)

Tennyson (English Men of Letters), by ALFRED LYALL.

16. (Major Course, Minor Course, and General Course.)

Browning.

ROBERT BROWNING—

My Last Duchess, The Flight of the Duchess, The Lost Leader, The Last Ride Together, By the Fireside, Old Pictures in Florence, Pictor Ignotus, Fra Lippo Lippi, Andrea del Sarto, The Bishop Orders His Tomb at St. Praxed's, A Toccata of Galuppi's, Abt Vogler, Prospice, A Grammarian's Funeral, An Epistle Containing the Strange Medical Experience of Karshish, the Arab Physician, Caliban Upon Setebos, Rabbi Ben Ezra, Confessions, Saul, In a Balcony.

(These poems are all contained in a volume in the "Astor Library," published by Crowell, New York.)

Required critical reading—

Robert Browning (English Men of Letters), by G. K. CHESTERTON.

17. (Major Course and Minor Course.)

The English Novel.

GOLDSMITH: The Vicar of Wakefield.
(Macmillan's Pocket Classics.)
WALPOLE: The Castle of Otranto.
(Cassell's National Library.)
MARIA EDGEWORTH: Castle Rackrent.
(Macmillan's Illustrated Pocket Library.)
THACKERAY: Henry Esmond.
(Macmillan's Pocket Classics.)
GEORGE ELIOT: Silas Warner.
(Macmillan's Pocket Classics.)
STEVENSON: The Master of Ballantrae.
(Macmillan's Pocket Classics.)

Required critical reading—

W. L. CROSS: The Development of the English Novel (Macmillan).

18. (Major Course only.)

Nineteenth Century Literature.

(a) Prose—

THOMAS CARLYLE: Heroes and Hero Worship, Lectures II., III., and IV. (Macmillan's Pocket Classics.)

JOHN RUSKIN: The Crown of Wild Olive. (Macmillan's Pocket Classics.)

(b) Poetry—

ARTHUR HUGH CLOUGH—

Say Not the Struggle Naught Availeth, Hope Evermore and Believe, Qui Laborat Orat, From Songs in Absence, Blessed Are They That Have Not Seen, The Shadow.

MATTHEW ARNOLD—

Shakespeare; The Forsaken Merman; Yes, in the Sea of Life Enisled; Dover Beach; West London; The Better Part.

DANTE GABRIEL ROSSETTI—

The Blessed Damozel, Sister Helen, John Keats. The following from The House of Life: Love Enthroned, Lovesight, Heart's Hope, Silent Moon, The Dark Glass, Willowwood, The Choice.

ALGERNON CHARLES SWINBURNE—

The Garden of Proserpine, A Forsaken Garden, The Salt of the Earth, Ben Johnson, Robert Browning.

N.B.—The above poems are contained in BRONSON'S English Poems of the Nineteenth Century (University of Chicago Press).

19. (Major Course only.)*

Old English.

(a) Bright's Anglo-Saxon Reader: Phonology, Grammar.

Extracts: I., II., IV., V., VI., VIII., IX., XII. XVI., XVIII., XIX.

(b) Bright's Anglo-Saxon Reader.

Extracts: XX., XXI., XXII., XXIII., and either XXIV., or part of Beowulf.

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* Alternative for Course 18, Nineteenth Century Literature

FRENCH

Instruction in French of the First and Second Years is provided only in the affiliated Colleges; instruction of the Third and Fourth Years is provided both in the University and in the affiliated Colleges.

FIRST YEAR

1A. (a) *Grammar.* Fraser and Squair's "High School French Grammar," to page 277, with associated exercises.
Composition.
Sight Translation.
(b) *Authors.*
AUGIER: Le Gendre de M. Poirier.

1B. (a) *Grammar.* Fraser and Squair's "High School French Grammar," from page 277 to end, with associated exercises.
Composition. Lazare's "Elementary French Composition" (Ginn & Co.) is recommended.
Sight Translation.
Dictation.
(b) *Authors.*
LAMARTINE: Graziella (Heath & Co.).
HALÉVY: L'Abbé Constantin (Heath & Co.).

SECOND YEAR

2A. (a) *Grammar, Composition and Sight Translation.*
Mansion's "Extracts for French Composition" (Heath & Co.) is recommended.
(b) *Authors.*
MÉRIMÉE: Colomba (Heath & Co.).

2B. (a) *Grammar, Composition, Sight Translation and Dictation.*
Mansion's "Extracts for French Composition" (Heath & Co.) is recommended.
(b) *Authors.*
PAILLERON: Le monde où l'on s'ennuie.
ERCKMANN-CHATRAIN: Madame Therèse. (Heath & Co.)

FIRST YEAR

(French-speaking Students)

3A. *Composition et Littérature en Prose.*
  (1) *Composition.*
  (2) *Littérature en Prose.*
    Verest: Manuel de Littérature.
      (a) Premier terms—de la page 126 à 282.
      (b) Second terme—de la page 283 à 441.

3B. *Modèles Français (Procès) et Poésie Dramatique.*
  (a) Premier terme—
    Procès: Modèles Français, Tomes II. et III. Extraits de Mme. de Sévigné, La Bruyère, Le Sage, Saint Simon, Voltaire, Buffon.
    Racine: Iphigénie.
  (b) Second terme—
    Procès: Modèles Français, Tomes II. et III. Extraits de Chateaubriand, Veuillot, Augustin Thiery, Thiers, Leconte de Lisle, Sully Prud'homme.
    Molière: Le Misanthrope.

SECOND YEAR

(French-speaking Students)

4A. *Composition et Rhétorique.*
  (1) *Composition.*
  (2) *Rhétorique.*
    Verest: Manuel de Littérature.
      Livre III., Chapter 3, et Livre IV.
    (a) Première terme—Préceptes de Rhétorique.
    (b) Seconde terme—L'art dramatique.

4B. *Littérature en Poésie et Prose.*
  (a) Premier terme—
    Procès: Modèles Français, Tome III. Poésies de Lamartine, Hugo, Musset et Chénier.
    Molière: Les Précieuses Ridicules.
    Corneille: Le Menteur.
  (b) Second terme—
    Bossuet: Sermon sur l'Ambition (Bertrand).
    Bourdaloue: Sermon sur la médisance (Hatsfeld).
    Lacordaire: Éloge funèbre du Général Druot.
    Bazin: La Barrière.

THIRD YEAR

5. (General Course only.)

CORNEILLE: Horace. (Holt & Co.)
Polyeucte. (Ginn & Co.)
Le Menteur.
LA FONTAINE: Fables (Selections).
Outline of the History of French Literature up to about 1600.
Sight Translation.
Composition.

6. (Major Course and Minor Course.)

CORNEILLE: Horace. (Holt & Co.)
Cinna. (Heath & Co.)
Polyeucte. (Ginn & Co.)
Le Menteur.
LA FONTAINE: Fables (Selections).
History of French Literature up to about 1600.
SAINTSBURY: A Short History of French Literature, Books I. and II.

7. (Major Course only.)

RACINE: Phèdre. (Heath & Co.)
Iphigénie. (American Book Co.)
Athalie. (Heath & Co.)
Les Plaideurs. (Heath & Co.)
BOILEAU: L'Art Poétique, Satires and Epitres in "Selections." (Heath & Co.)

8. (General Course only.)

MOLIÈRE: Les Précieuses Ridicules (Heath & Co.)
Les Facheux. (Clarendon Press.)
Le Médecin Malgré lui. (Heath & Co.)
Le Misanthrope. (Heath & Co.)
LA BRUYERE: Les Caractères (pp. 1-68, Edition of Heath & Co.)
PELLISSIER: The Literary Movement in France during the Nineteenth Century (Chap. I.).
Composition.
Sight Translation.
Dictation.

9. (Major Course and Minor Course.)

MOLIÈRE: Les Précieuses Ridicules. (Heath & Co.)
Les Facheux. (Clarendon Press.)
Le Médecin Malgré lui. (Heath & Co.)
Le Misanthrope. (Heath & Co.)
Les Femmes Savantes. (Heath & Co.)
LA BRUYERE: Les Caractères. (pp. 1-68, Edition of Heath & Co.)
PELLISSIER: The Literary Movement in France during the Nineteenth Century (Chap. I.).

10. (Major Course only.)

SAINT-SIMON: Pages Choisies des Mémoires (Ginn & Co.)
MME. DE LA FAYETTE: La Princesse de Clèves.
BOSSUET: Selections (Heath & Co.).
PASCAL: Selections (Heath & Co.).

11. (Minor Course only.)

SUPER: Histoire de France (pp. 1-141). (Holt & Co.)
History of French Literature in the Seventeenth Century.
SAINTSBURY: A Short History of French Literature, Book III.
Composition, Sight Translation, Conversation.

12. (Major Course only.)

SUPER: Histoire de France (pp. 1-141). (Holt & Co.)
MASSON: Richelieu. (Home Library Series.)
History of French Literature in the Seventeenth Century.
SAINTSBURY: A Short History of French Literature. Book III.
CRANE: La Société Française au Dix-Septième Siècle.

FOURTH YEAR

13. (Major Course only.)

VOLTAIRE: Zadig (Heath & Co.).
DIDEROT: Selections (Heath & Co.).

Beaumarchais: Le Mariage de Figaro.
Chateaubriand: Atala (Heath & Co.).

14. (General Course only.)

Mme. de Staël: De l'Allemagne (Part II.). (Clarendon Press.)
Hugo: Préface de Cromwell (Scott, Foresman & Co.).
Hernani (Scott, Foresman & Co.).
Poésies (pages 108-220, edition of Heath & Co.).
Composition.
Sight Translation.

15. (Major Course and Minor Course.)

Mme. de Staël: De l'Allemagne (Part II.). (Clarendon Press.)
Hugo: Préface de Cromwell (Scott, Foresman & Co.).
Hernani (Scott, Foresman & Co.).
Poésies (pages 108-220, edition of Heath & Co.).
Alfred de Musset: Poésies (pp. 1-78, edition Ginn & Co.).
Marzials: Hugo (Great Writers' Series).

16. (General Course only.)

Hugo: Notre Dame de Paris (Ginn & Co.).
George Sand: La petite Fadette (Heath & Co.).
Balzac: Le Père Goriot (Heath & Co.).
Pellissier: The Literary Movement in France during the Nineteenth Century.
Composition.
Sight Translation.
Dictation.

17. (Major Course and Minor Course.)

Hugo: Notre Dame de Paris (Ginn & Co.).
George Sand: La petite Fadette (Heath & Co.).
Balzac: Le Père Goriot (Heath & Co.).
Eugénie Grandet (Holt & Co.).
Pellissier: The Literary Movement in France during the Nineteenth Century.

18. (Major Course only.)
    PONSARD: Charlotte Corday.
    ROSTAND: Cyrano de Bergerac (Holt & Co.).
    DUMAS: Les Trois Mousquetaires (Heath & Co.).
    DAUDET: Choix de Contes (Heath & Co.'s edition, with vocabulary).
    GUY DE MAUPASSANT: Ten Short Stories (Ginn & Co.).

19. (Minor Course only.)
    SUPER: Histoire de France (pp. 142-210, Holt & Co.).
    MALLET: French Revolution (Scribners).
    Composition.
    Sight Translation.
    Conversation.

20. (Major Course only.)
    SUPER: Histoire de France (pp. 142-210, Holt & Co.).
    MALLET: French Revolution (Scribners)
    GASTON PARIS: Extraits de la Chanson de Roland (Ginn & Co.).

GERMAN

Instruction in German of the First and Second Years is provided only in the affiliated Colleges; instruction in German of the Third and Fourth Years is given both in the University and in the affiliated Colleges.

FIRST YEAR

1A. (a) *Grammar.* Van der Smissen and Fraser's "High School German Grammar, pages 1-224.
Composition. Pope's "Writing and Speaking German" (Holt & Co.) is recommended.
Sight Translation.
(b) *Authors.*
ROSEGGER: Der Lex von Gutenhag (Heath & Co.)
GOETHE: Poems in Hatfield's "German Lyrics and Ballads" (Heath & Co.).

1B. (a) *Grammar.* Van der Smissen and Fraser's "High School German Grammar, pages 1-224.
Composition. Pope's "Writing and Speaking German" (Holt & Co.) is recommended.
Sight Translation.
Dictation.
(b) *Authors.*
Freytag: Die Journalisten (Holt & Co.).

SECOND YEAR

2A. (a) *Grammar.*
Composition. Horning's "Exercises in German Composition" (Copp, Clark & Co.) is recommended.
Sight Translation.
(b) *Authors.*
Goethe: Hermann und Dorothea (Ginn & Co.).

2B. (a) *Grammar.*
Composition. Horning's "Exercises in German Composition" (Copp, Clark & Co.) is recommended.
Sight Translation.
Dictation.
(b) *Authors.*
Heine: Die Harzreise and Poems (Ginn & Co.).

THIRD YEAR

3. (Major Course only.)
Klopstock: Messias and Odes, in "Ausgewählte Oden und Elegien, nebst einigen Bruchstücken aus dem Messias" (Schöninghs Auswahl deutscher Klassiker).
Herder: Prosaschriften in Auswahl (Schöninghs Auswahl deutscher Klassiker).
Wieland: Oberon (Cantos I., VIII., IX.).

4. (General Course only.)
Lessing: Minna von Barnhelm (Holt & Co.).
Emilia Galotti (Heath & Co.).
Outline of History of German Literature to 1740
Composition.
Sight Translation.

5. (Major Course and Minor Course.)
   LESSING: Minna von Barnhelm (Holt & Co.).
   Emilia Galotti (Heath & Co.).
   Nathan der Weise (American Book Co.).
   SCHERER: History of German Literature, Vol. I. and Vol. II., pages 1 to 91.
   ROLLESTON: Life of Lessing.

6. (General Course only.)
   GOETHE: Die Leiden des jungen Werthers (Reclam).
   Egmont (Heath & Co.).
   Selections from Poems (Harris), pp. 1 to 75 (Heath & Co.).
   Outline of History of German Literature from 1740 to 1786.
   Composition
   Sight Translation.
   Dictation.

7. (Major Course and Minor Course.)
   GOETHE: Die Leiden des jungen Werthers (Reclam).
   Egmont (Heath & Co.).
   Selections from Poems (Harris), pp. 1 to 75 (Heath & Co.).
   SCHERER: History of German Literature, Vol. II., pages 91 to 144.
   LEWES: Life of Goethe, to 1786 (Smith, Elder & Co.).

8. (Major Course only.)
   GOETHE: Gőtz von Berlichingen (Ginn & Co.).
   SCHILLER: Don Carlos (Oxford University Press).
   BÜRGER: Ballads in "Balladen und Romanzen" (Macmillan Co.).
   THOMAS: Life and Works of Schiller, to 1788 (Holt & Co.).

9 (Minor Course only.)
   HENDERSON: A Short History of Germany (to 1786).

Composition.
Sight Translation.
Conversation.

10. (Major Course only.)
Henderson: A Short History of Germany (to 1786)
Reddaway: Frederick the Great (Heroes of the Nations).
Wright: A Middle High German Primer (Clarendon Press).

FOURTH YEAR

11. (General Course only.)
Goethe: Faust, Part I.. (Heath & Co.).
Hermann und Dorothea (Ginn & Co.).
Composition.
Sight Translation.

12. (Major Course and Minor Course.)
Goethe: Faust, Part I. (Heath & Co.).
Hermann und Dorothea (Ginn & Co.).
Dichtung und Wahrheit, pages 198 to 277 (Holt & Co.).
Lewes: Life of Goethe, from 1786 (Smith, Elder & Co.).

13. (Major Course only.)
Kleist: Prinz Friedrich von Homburg (Ginn & Co.).
Grillparzer: Sappho (Macmillan & Co.).
Hebbel: Herodes und Mariamne (Holt & Co.).
Agnes Bernauer (Oxford University Press).

14. (General Course only.)
Schiller: Wilhelm Tell (Ginn & Co.).
Lyrical Poems, pages 35 to 109 (Macmillan & Co.).
Heine: Die Harzreise and Lyrics (Ginn & Co.).
Outline of History of German Literature from 1786.
Composition.
Sight Translation.

5. (Major Course and Minor Course.)

SCHILLER: Wilhelm Tell (Ginn & Co.).
Lyrical Poems, pages 35 to 109 (Macmillan & Co.).

HEINE: Die Harzreise and Lyrics (Ginn & Co.).

SCHERER: History of German Literature, Vol. II., page 145 to end.

THOMAS: Life and Works of Schiller, from 1788 (Holt & Co.).

16. (Major Course only.)

SUDERMANN: Frau Sorge (Holt & Co.).
Die Heimat (Heath & Co.).

HAUPTMANN: Die Versunkene Glocke (Holt & Co.).

MEYER: Jürg Jenatsch (Macmillan Co.).

HELLER: Studies in Modern German Literature (Ginn & Co.).

17. (Minor Course only.)

HENDERSON: A Short History of Germany (from 1786).

Composition.

Sight Translation.

Conversation.

18. (Major Course only.)

HENDERSON: A Short History of Germany (from 1786).

SMITH: Bismarck and German Unity (Macmillan Co.).

WRIGHT: A Middle High German Primer (Clarendon Press).

ICELANDIC

Instruction in Icelandic is provided only in Wesley College.

1. (a) *Grammar.* Wimmer's Icelandic Grammar (complete).
   (b) *Composition.* Writing Icelandic from dictation. Translation from Icelandic into English, and from English into Icelandic. Writing of short essays and digests of books.
   (c) *Authors.*
      First Term—
         Njála, Chapters 1 to 75.
      Second Term—
         Njála, Chapter 76 to end.
      Collateral Reading—
         Hrafnkells saga Freysgoda.
         Bókmentasaga (ed. Finnur Jonsson), selected portions.
         Gudbrand Vigfússon's Prolegomena to Sturlunga.

2. (a) *Grammar.*
   (b) *Composition.*
   (c) *Authors.*
      First Term—
         Njála, Chapters 1 to 75.
      Second Term—
         Njála, Chapter 76 to end.
      Collateral Reading—
         Hrafnkells saga Freysgoda.
         Bókmentasaga (ed. Finnur Jonsson), selected portions.
      Guðbrand Vigfússon's Prolegomena to Sturlunga.

SWEDISH

1A. *Grammar and Composition.*
   Translation from English into Swedish and from Swedish into English. Writing of essays.

1B. *Authors and Literary History.*
   Esaias Tegner: Frithiof's Saga.
   Swedish Literature from 1772 to 1830.
   Karl Wartburg: Svensk Literaturhistoria.
   A. Ekerman: Läsebok till Svenska Literaturhistorian.

2A. *Grammar and Composition.*
   Translation from English into Swedish and from Swedish into English. Writing of essays.

2B. *Authors and Literary History.*
KARL SNOILSKY: Svenska bilder.
J. O. WALIN: Dödens ängel.
Swedish Literature from 1830 to the present time.
KARL WARTBURG: Svensk Literaturhistoria.
A. EKERMAN: Läsebok till Svenska Literaturhistorian.

PHILOSOPHY (ENGLISH)

Instruction in English Philosophy is provided only in the affiliated Colleges.

SECOND YEAR

1A. *Logic.* (First Term.)
CREIGHTON: An Introductory Logic (1910 Edition), Introduction and Part I.

1B. *History of Philosophy.* (Second Term.)
Greek Period.
WEBER: History of Philosophy (Part I.).

THIRD AND FOURTH YEARS

GENERAL COURSE.

2. *Metaphysics.* (First Term.)
MACKENZIE: Outlines of Metaphysics.

3. *Psychology.* (Second Term.)
STOUT: Manual of Psychology (University Tutorial Series).

4 *Ethics.* (First Term.)
MACKENZIE: Manual of Ethics (University Tutorial Series).

5. *Ethics.* (Second Term.)
PLATO: Republic.

GROUP COURSES.

6A. *History of Philosophy.* (First Term.)
Mediaeval Period.
WEBER: History of Philosophy (Part II.).

6B. *History of Philosophy.* (Second Term.)
Modern Period.
Weber: History of Philosophy (Part III. to Kant).

7A. *History of Philosophy.* (First Term.)
Modern Period.
Weber: History of Philosophy (Part III., Kant).

7B. *History of Philosophy.* (Second Term.)
Modern Period.
Weber: History of Philosophy (Part III., from Kant to end).

8A. *Metaphysics.* (First Term.)
Locke.
Locke: Essays, Book II.

8B. *Metaphysics.* (Second Term.)
Berkeley and Hume.
Berkeley: Selections (Ed. Fraser)
Hume: Selections (Ed. Aikins).

9A. *Metaphysics.* (First Term.)
Mackenzie: Outlines of Metaphysics.

9B. *Metaphysics.* (Second Term.)
Ward: Realm of Ends.

10. *Metaphysics.* (Second Term.)
Kant: Critique of Pure Reason.

11A. *Logic.* (First Term.)
Creighton: An Introductory Logic, 1910 Edition (Part II.).
Mill: Logic (Part III.).

11B. *Logic.* (Second Term.)
Creighton: An Introductory Logic, 1910 Edition (Part III.).
Bosanquet: Essentials of Logic.

12 *Psychology.* (Second Term.)
Stout: Manual of Psychology.

13A. *Ethics.* (Second Term.)
PLATO: Republic.

13B. *Ethics.* (First Term.)
ARISTOTLE: Ethics.

13C. *Ethics.* (First Term.)
MACKENZIE: Ethics.

13D. *Ethics.* (Second Term.)
GREEN: Prolegomena to Ethics (omitting Book III. Chap. 5, and Book IV., Chap. 3 and 4).

14. *Philosophy of Religion.* (First Term.)

CAIRD: Introduction to the Philosophy of Religion

15. *Political Science.* (Second Term).
BOSANQUET: Philosophical Theory of the State.

16. *Political Science.* (Second Term.)
ARISTOTLE: Politics (Weldon's Translation).

PHILOSOPHY (LATIN)

Instruction in Latin Philosophy is provided only in St. Boniface College.

1A. *Logicae Pars I.*
RUSSO: Logica.
POLAND: The Laws of Thought.

1B. *Logicae Pars II.*
RUSSO: Logica.
POLAND: The Laws of Thought.

2. *Logique.*
(Pour les candidats de langue française au cours général.)
FONSEGRIVE: Logique.

3. *Métaphysique.*
(Pour les candidats de langue française au cours général.)
FONSEGRIVE: Métaphysique.

4A. *Philosophia Moralis I.* (First Term.)

(a) Pour les candidats de langue française:
Lacordaire: Conférences (1851, 1854).
Lettres à des Jeunes gens.
Monsabré: Radicalisme contre Radicalisme.

(b) For English-speaking students:
Russo: Praelectiones.
Ming: Modern Ethics.

4B. *Philosophia Moralis II.* (Second Term.)

(a) Pour les candidats de langue française:
Russo: Praelectiones.
Félix: Conferences (1865).
Monsabré: Radicalisme contre Radicalisme.

(b) For English-speaking students:
Russo: Praelectiones.
Gerard: Evolution—The Old Riddle and the Newest Answer.

5. *Logica.*

(a) Pour les candidats de langue française:
Russo:

(b) For English-speaking students:
Russo:

6. *Metaphysica.*

(a) Pour les candidats de langue française:
Russo:
Fénélon: Traité de l'Existence de Dieu.
Pascal: Pensées.
Monsabré: Oeuvre de Dieu.

(b) For English-speaking students:
Russo:
Rickaby: Metaphysics—Modern Errors.
Maher: Psychology—Modern Errors.

7. (a) Pour les candidats de langue française:
Histoire de la Philosophie.
Valet: (Première et Deuxieme Partie).

(b) For English-speaking students:
History of Philosophy.
Turner: (Ancient and Scholastic Periods).

8A. (a) Pour les candidats de langue française:
Histoire de la Philosophie, I. (Premier Terme.)
VALET: Histoire de la Philosophie (Troisième Partie —17me et 18me siècle).
(b) For English-speaking students:
History of Philosophy, I. (First Term.)
TURNER: History of Philosophy (Modern Period, Part I.).

8B. (a) Pour les candidats de langue française:
Histoire de la Philosophie, II. (Second Terme.)
VALET: Histoire de la Philosophie (Troisième Partie 19me siècle).
(b) For English-speaking students:
History of Philosophy, II. (Second Term.)
TURNER: History of Philosophy (Modern Period, Part II.).

9A. (a) Pour les candidats de langue française:
Économie Politique, I. (Premier Terme.)
HERVÉ-BAZIN: Traité d'Économie Politique.
MOLINARI: Questions Économiques.
(b) For English-speaking students:
Political Economy, I. (First Term.)
DEVAS: Political Economy.

9B. (a) Pour les candidats de langue française:
Économie Politique, II. (Second Terme.)
CATHEREIN: Le Socialisme.
(b) For English-speaking students:
Political Economy, II. (Second Term.)
PREUSS: Fallacy of Socialism.

10. (a) Pour les candidats de langue française:
Chimie.
BAZIN: Chimie.
(b) For English-speaking students:
Chemistry.
REMSEN: Chemistry.

11. (a) Pour les candidats de langue française:
Physique.
BAZIN: Physique.
(b) For English-speaking students:
Physics.
GAGE: Physics.

HISTORY

Instruction in the History of the First and Second Years is given only in the affiliated Colleges; instruction in that of the Third and Fourth Years (both General Course and Special Courses) is given in the University.

1A. *Ancient History, I.* (First Term.)
WOLFSON: Essentials in Ancient History (pp. 60-215).

1B. *Ancient History, II.* (Second Term.)
WOLFSON: Essentials in Ancient History (pp. 216-455).

2A. *Histoire Ancienne, I.* (Premier Terme.)
ABBÉ GAGNOL: Histoire de la Grèce Ancienne.

2B. *Histoire Ancienne, II.* (Second Terme.)
ABBÉ GAGNOL: Histoire Romaine.

3A. *Mediaeval and Modern History, I.* (First Term.)
ADAMS: European History (pp. 120-302).
or ADAMS: Mediaeval and Modern History (pp. 20-202)

3B. *Mediaeval and Modern History, II.* (Second Term.)
ADAMS: European History (pp. 303-558).
or ADAMS: Mediaeval and Modern History (pp. 203-458).

4A. *Histoire du Moyen Age.* (Premier Terme.)
JEAN MOELLER: Histoire du Moyen-Age.

4B. *Histoire Moderne.* (Second Terme.)
JEAN MOELLER: Histoire Moderne et Histoire Contemporaine.

For remaining Courses see under University Department of Instruction in History, pages 117 to 121.

POLITICAL ECONOMY

Instruction in Political Economy is given only in the University.

For Courses in Political Economy see under University Department of Instruction in Political Economy, pages 121 to 135.

MATHEMATICS

Instruction in the Mathematics of the First Year is given only in the affiliated Colleges. The University provides instruction in Mathematics of the Second, Third and Fourth Years.

1. *Algebra.* (First Term.)
   HALL AND KNIGHT: Elementary Algebra, Chapters XXX., XXXI., XXXVI.—XXXVIII, XLIV.

2. *Trigonometry, I.* (First Term.)
   HALL AND KNIGHT: Elementary Trigonometry, Chapters I. to X., inclusive.
   No questions will be set involving a knowledge of circular measure.

3. *Geometry, I.* (Second Term.)
   BAKER: Analytical Geometry for Beginners.

   Analytical Geometry of straight line and circle for rectangular axes.

4. *Trigonometry, II.* (Second Term.)
   HALL AND KNIGHT: Elementary Trigonometry, Chapters XI. to XVIII., as far as page 207, inclusive.
   In the demonstration of Theorems the starting point shall be the definitions given in the prescribed texts.

For remaining Courses see under University Department of Instruction in Mathematics, pages 135 to 142.

PHYSICS

For details of Courses see under University Department of Instruction in Physics, pages 143 to 146.

BOTANY

For details of Courses see under University Department of Instruction in Botany, pages 147 to 150.

GEOLOGY AND MINERALOGY

For details of Courses see under University Department of Instruction in Geology and Mineralogy, pages 150 to 156.

CHEMISTRY

For details of Courses see under University Department of Instruction in Chemistry, pages 157 to 163.

PHYSIOLOGY

For details of Courses see under University Department of Instruction in Physiology, pages 163 to 171.

ZOOLOGY

For details of Courses see under University Department of Instruction in Zoology, pages 171 to 176.

University Departments of Instruction in Arts and Science

University Departments of Instruction in Arts and Science

DEPARTMENT OF ENGLISH.

Alexander W. Crawford, M.A., Ph.D. ....*Professor*

Aaron J. Perry, M.A. ....*Lecturer*

The University at present offers instruction in the English of the Third and Fourth Years in Arts only; that of the First and Second Years is provided for by the affiliated Colleges.

The courses in this department consist of prescribed selections from standard English literature and of required readings in literary history for concurrent study by the student. The content of the latter will enter into the examination. The lectures will treat of the authors and the literary history of periods covered. The writing of essays is considered part of the class work of the students. Alternative courses in English Language are also offered.

Third Year—Arts.

1. *Chaucer.*

Geoffrey Chaucer—

The Canterbury Tales: The Prologue; The Tale of Chanticleer and the Fox; The Pardoner's Tale.
(One volume, "Chaucer, Selected Poems," edited by Emerson and published by Macmillan & Co.)
Required critical reading—
Chaucer, by A. W. Ward (English Men of Letters)

2. *Spenser.*

Edmund Spenser—

The Faerie Queene, Book I.
The Shephearde's Calendar: February; April; May; October.
Astrophel.
The Fowre Hymnes: An Hymn in Honor of Love; An Hymn in Honor of Beauty; An Hymn of Heavenly Love; An Hymn of Heavenly Beauty.
("The Oxford Spenser," edited by Smith and Selincourt, and published by the Oxford University Press.)

Required critical reading—
Spenser, by Dean Church (English Men of Letters).

3. *The English Drama.*

Udall: Ralph Roister Doister.
Marlowe: Doctor Faustus.
Jonson: Every Man in His Humour.
Beaumont and Fletcher: Philaster.
Webster: The Duchess of Malfi.
(These plays may be obtained separately in the "Temple Dramatists" series, published by Dent.)

4. *The Drama of Shakespeare.*

William Shakespeare—
Romeo and Juliet.
Julius Caesar.
Hamlet.
Antony and Cleopatra.
The Tempest.
Required critical reading—
Introduction to Shakespeare, by MacCracken and others (Macmillan & Co.).

5. *Milton.*

John Milton—
Comus.
The Sonnets.
Paradise Lost. Books I., II., III., IV.
Prose of Milton (pp. 1-159), edited by Richard Garnett (Walter Scott).
Required critical reading—
Milton (English Men of Letters), by Mark Pattison.

6. *Eighteenth Century Literature.*

(a) Prose—
Bunyan: Pilgrim's Progress, Part I.
Swift: Gulliver's Travels, Books I. and II.
Addison: Sir Roger de Coverley papers, from "The Spectator."
Burke: Conciliation with America.
(These may each be obtained separately in Macmillan's Pocket Classics.)

(b) Ballads—

The selections in "Old English Ballads," edited by Armes, in Macmillan's Pocket Classics.

(c) Poetry—

Pope: Essay on Man.
Epistle to Dr. Arbuthnot.

Johnson: The Vanity of Human Wishes.

Gray: Ode on a Distant Prospect of Eton College.
Hymn to Adversity.
Elegy Written in a Country Churchyard.
The Progress of Poesy.

Collins: Ode to Evening.
The Passions.
Ode on the Popular Superstitions of the Highlands of Scotland.

Blake: Introduction to Songs of Innocence.
The Lamb.
The Defiled Sanctuary.
The Tiger.
From Milton.
To the Queen.

Burns: Mary Morrison.
The Twa Dogs.
To a Mouse; To a Mountain Daisy; John Anderson, My Jo; Tam O'Shanter; Highland Mary; Scots Wha Hae; Is there for Honest Poverty.

N.B.—The above poems are all contained in Bronson's English Poems of the Eighteenth Century. (University of Chicago Press.)

Required critical reading—

W. L. Phelps: The Beginnings of the Romantic Movement. (Ginn & Co.)

7. *History of the English Language.*

Lectures on the growth and structure of the English language.

Text-book—Otto Jesperson: Growth and Structure of the English Language (G. E. Stechert, New York).

Books of reference—

Henry Bradley: The Making of English (Macmillan).

O. F. Emerson: History of the English Language (Macmillan).

FOURTH YEAR.—ARTS.

1. *Wordsworth and Coleridge.*

(a) WILLIAM WORDSWORTH—

We Are Seven, Lucy Gray, The Pet Lamb, Ruth, Hart Leap Well, The Affliction of Margaret, The Leech Gatherer, Michael, My Heart Leaps Up, To the Daisy, The Green Linnet, Three Years She Grew in Sun and Shower, To the Cuckoo, To a Skylark, She Was a Phantom of Delight, To a Highland Girl, Stepping Westward, The Solitary Reaper, At the Grave of Burns, Yarrow Unvisited, Yarrow Visited, Yarrow Revisited, Ode to Duty, Ode on Intimations of Immortality, Influence of Natural Objects, Lines Composed a Few Miles Above Tintern Abbey. The French Revolution (as it appeared to enthusiasts at its commencement), Nutting, To Mary Wordsworth. (Poems of Wordsworth, edited by Matthew Arnold, "Golden Treasury" Series. Macmillan.)

(b) SAMUEL TAYLOR COLERIDGE—

The Golden Book of Coleridge, Parts II.III. (pp. 95-179), edited by Stopford A. Brooke. (J. M. Dent & Co.)

Required critical reading—

"Preface" to Poems of Wordsworth, by MATTHEW ARNOLD.
Wordsworth (English Men of Letters), by F. W. H. MEYERS.
Coleridge (English Men of Letters),by H. D. TRAILL.

2. *Shelley, Keats, and Byron.*

(a) PERCY BYSSHE SHELLEY—

Alastor, Lines Written Among the Euganean Hills, Hymn to Intellectual Beauty, Ode to the West Wind, The Sensitive Plant, The Cloud, To a Skylark, Ode to Liberty, Adonais.
(These poems are all contained in the volume, edited by Alexander, published by Ginn & Co.).

(b) JOHN KEATS—

Sonnets: Written on the Day that Leigh Hunt Left Prison, On First Looking Into Chapman's Homer, On the Grasshopper and the Cricket, Addressed to Haydon, Lamia, Ode to a Nightingale, Ode on a Grecian Urn, Lines on the Mermaid Tavern, Ode on Melancholy, La Belle Dame sans Merci.

(These poems are all contained in the volume, edited by Bates, published by Ginn & Co.)

(c) LORD GEORGE GORDON BYRON—

Drama: Manfred.

Lyrics: Pages 287-304 in text.

(Selections from Byron, edited by Carpenter, published by Henry Holt & Co., New York.)

3. *Tennyson.*

ALFRED, LORD TENNYSON—

(a) Shorter Poems: The Lady of Shalott; The Palace of Art; The Lotos-Eaters; Ulysses; The Gardener's Daughter; The Vision of Sin; Ode on the Death of the Duke of Wellington; Crossing the Bar. (Macmillan's Pocket Classics.)

(b) In Memoriam. (Macmillan's Pocket Classics.)

(c) Idylls of the King: The Coming of Arthur; Lancelot and Elaine; The Holy Grail; Guinevere; The Passing of Arthur. (Macmillan's Pocket Classics.)

Required critical reading—

The Introduction in "Tennyson, His Art and Relation to Modern Life," by STOPFORD A. BROOKE, pp. 7-52. (Isbister.)

Tennyson (English Men of Letters), by Alfred Lyall.

4 *Browning.*

ROBERT BROWNING—

My Last Duchess, The Flight of the Duchess, The Lost Leader, The Last Ride Together, By the Fireside, Old Pictures in Florence, Pictor Ignotus, Fra Lippo Lippi, Andrea del Sarto, The

Bishop Orders His Tomb at St. Praxed's, A Toccata of Galuppi's, Abt Vogler, Prospice, A Grammarian's Funeral, An Epistle Containing the Strange Medical Experience of Karshish, the Arab Physician, Caliban Upon Setebos, Rabbi Ben Ezra, Confessions, Saul, In a Balcony.

(These poems are all contained in a volume in the "Astor Library," published by Crowell, New York.)

Required critical reading—

Robert Browning (English Men of Letters), by G. K. CHESTERTON.

5. *The English Novel.*

GOLDSMITH: The Vicar of Wakefield.
(Macmillan's Pocket Classics.)
WALPOLE: The Castle of Otranto.
(Cassell's National Library.)
MARIA EDGEWORTH: Castle Rackrent.
(Macmillan's Illustrated Pocket Library.)
THACKERAY: Henry Esmond.
(Macmillan's Pocket Classics.)
GEORGE ELIOT: Silas Marner.
(Macmillan's Pocket Classics.)
STEVENSON: The Master of Ballantrae.
(Macmillan's Pocket Classics.)

Required critical reading—

W. L. CROSS: The Development of the English Novel. (Macmillan).

6. *Nineteenth Century Literature.*

(a) Prose—

THOMAS CARLYLE: Heroes and Hero Worship, Lectures II., III., and IV. (Macmillan's Pocket Classics.)
JOHN RUSKIN: The Crown of Wild Olive. (Macmillan's Pocket Classics.)

(b) Poetry—

ARTHUR HUGH CLOUGH—

Say Not the Struggle Naught Availeth, Hope Evermore and Believe, Qui Laborat, Orat, From Songs in Absence, Blessed Are They That Have Not Seen, The Shadow.

MATTHEW ARNOLD—
Shakespeare, The Forsaken Merman, Yes, in the Sea of Life Enisled, Dover Beach, West London, The Better Part.

DANTE GABRIEL ROSSETTI—
The Blessed Damozel, Sister Helen, John Keats. The following from The House of Life: Love Enthroned, Lovesight, Heart's Hope, Silent Moon, The Dark Glass, Willowwood, The Choice.

ALGERNON CHARLES SWINBURNE—
The Garden of Proserpine, A Forsaken Garden, The Salt of the Earth, Ben Jonson, Robert Browning.

N.B.—The above poems are contained in Bronson's English Poems of the Nineteenth Century (University of Chicago Press).

7. *Old English.*
   (a) Bright's Anglo-Saxon Reader. Phonology, Grammar. Extracts: I., II., IV., V., VI., VIII., IX., XII., XVI., XVIII., XIX.
   (b) Bright's Anglo-Saxon Reader. Extracts: XX., XXI., XXII., XXIII., and either XXIV. or part of Beowulf.

For Extension Courses in English Literature, given by Professor Crawford, see page 177.

DEPARTMENT OF FRENCH

W. F. OSBORNE, M.A. .... *Professor*

The University at present offers instruction in the French of the Third and Fourth Years in Arts only; instruction in French of the First and Second Years is provided in the affiliated Colleges.

For the Courses in French of the Third and Fourth Years see pages 92 to 95.

DEPARTMENT OF GERMAN

J. H. HEINZELMANN, Ph.D. .... *Professor*

The University at present offers instruction in the German of the Third and Fourth Years in Arts only; instruction in German of the First and Second Years is provided in the affiliated Colleges.

For the Courses in German of the Third and Fourth Years see pages 96 to 99.

DEPARTMENT OF HISTORY.

CHESTER MARTIN, M.A., B.Litt. .... *Professor*

RALPH FLENLEY, M.A., B.Litt. ....Lecturer*

The various periods to be taken up in the two years of the Major Course in History will be covered by regular lectures, supplemented by tutorial work with small groups of students. These groups will prepare essays twice a week to be read and discussed with the instructor in charge. The subjects of the essays will cover as far as possible the chief problems of the period under consideration.

THIRD YEAR. MAJOR COURSE.

The courses for the year 1913-1914 will be as follows:

1. The Third Year class will cover British Political and Constitutional History from the Roman Period to the Reform Bill, with a few special lectures and essays on some of the chief problems of the present time.

A. For the Political History of the period, students will be expected to have a reading knowledge of Green's "Short History of the English People," or of York-Powell and Tout's small "History of England." For the actual work of the session, however, they will be referred to less elementary books on special subjects and periods, such, for instance, as Freeman's "Norman Conquest," Vinogradoff's "Manor and Villeinage in England," Gardiner's "History of England, 1603-1642, etc.," Ranke's "History of England, Principally in the Seventeenth Century," Seeley's "Expansion of England" and "Growth of British Policy," the "Political History of England" Series, edited by Poole (Longmans, Green & Co.), and the six-volume work edited by Oman (Methuen & Co.). Students of the Third Year would do well during the summer vacation to read Davis' "England under the Normans and Angevins," in the Methuen series, and Fisher's "Political History of England, 1485-1547," in the Longmans series, in connection with Green or York-Powell and Tout. A historical atlas is necessary: Ramsay Muir's "Students' Atlas of British History" is the most suitable one.

B. In the study of the Constitutional History of the period, special emphasis will be placed upon the evolution of principles of parliamentary representation and upon the development and centralization of law and of the administration of justice. The documentary ground work for lectures and essays will be found in Stubb's "Select Charters," Stubb's "Constitutional History of England, Prothero's "Statutes and Constitutional Documents, 1559-1625," Gardiner's "Constitutional Documents of the Puritan Revolution, 1628-1660," Robertson's "Select Statutes, Cases and Documents, 1660-1832," with "Supplement 1832-1894," and Dicey's "Law of the Constitution." F. W. Maitland's "Constitutional History of England" contains the most complete survey of constitutional development. These volumes will not be used as text-books in the ordinary sense of the word, except where definite references are given for special reading in the lectures or essay work of the year. Students should possess the first two, however, and should master the introductions of Prothero and of Gardiner

FOURTH YEAR. MAJOR COURSE.

2. The course for the Fourth Year will comprise a period of General European History, and special phases in a period of Canadian History.

A. The period of General European History for the year 1913-1914 will be 1789 to 1878.

The work of the course will be grouped around special phases or subjects, among the more important of which are: The French Revolution; Napoleon; Europe after 1815; Greek Independence; the Revolutions of 1848; the Crimean War and the Eastern Question; the Union of Italy; the Foundation of the German Empire; the Franco-German War; the Treaty of Berlin.

Some study will be made of the constitutional documents for the period, contained in "Constitutions and Documents for the History of France, 1789-1907," edited by F. M. Anderson. The general survey of the period may be made from:—Rose, "The Revolutionary and Napoleonic Era"; Morse Stephens, "Revolutionary France"; Alison Phillips, "Modern Europe"; Eeignobos, "Histoire politique de l'Europe contemporaine" (translated).

Reference will also be necessary to larger works and to books dealing with special topics, some of which authorities will be:—"The Cambridge Modern History"; Lavisse et Ramband, "Histoire Générale"; Fyffe, "History of Modern Europe"; Young, "Travels in France"; Burke, "Reflections on the French Revolution"; Carlyle, "The French Revolution"; Rose, "Life of Napoleon"; Fournier, "Napoleon Ier"; Oman, "Peninsular War"; Mahan, "Influence of Sea Power on the French Revolution and Empire"; Metternich, "Memoirs" (translated); Fisher, "Republican Tradition in Europe"; Bolton King, "History of Italian Unity"; Butler Clarke, "Modern Spain"; Kinglade, "Crimean War"; Headlam, "Life of Bismarck"; and other works.

A historical atlas is essential to the study of the period. The one recommended is Ramsay Muir, "Historical Atlas for Students" (Philips).

B. The period of Canadian History for the year 1912-1913 will be 1763 to 1867. The following phases will be selected for special consideration: The period from the Cession to the Constitutional Act in detail; the war of 1812; the opening of the West; the Rebellion; Responsible Government; Confederation. The chief sources for the study of the period are:

(i.) Shortt and Doughty's "Selection of Constitutional Documents, 1763-1791." (Report of Canadian Archives, 1905.)

(ii.) Egerton and Grant's "Canadian Constitutional Development."

(iii.) Shortt and Doughty's "Selection of Constitutional Documents, 1791-1840" (in process of compilation).

Books of reference such as Lucas, Egerton, Garneau, McMullen, Kingsford, "The Makers of Canada" series, etc., will be recommended as the occasion for using them arises.

THIRD YEAR. GENERAL COURSE.

3. The work for General Course students of the Third Year will be British History and Colonial Expansion from 1485.

Textbooks—

(i.) J. R. Green: A Short History of the English People.
(ii.) W. Bagehot: The English Constitution.
(iii.) J. R. Seeley: The Expansion of England.
(iv.) H. E. Egerton: The Origin and Growth of the English Colonies.
(v.) Ramsay Muir: Students' Atlas of British History.

Reference may also be made to the following books: Mines' "England Under the Tudors," Trevelyan's "England Under the Stuarts," C. G. Robertson's "England Under the Hanoverians," Justin McCarthy's "History of Our Own Times," Maitland's "Constitutional History of England," Egerton's "Short History of British Colonial Policy," Froude's "Elizabethan Seamen," Firth's "Cromwell," Morley's "Walpole," Roseberry's "Pitt," Morley's "Gladstone," Macaulay's essays on "Bunyan," "Chatham," "Clive," "Pitt," etc.

FOURTH YEAR. GENERAL COURSE.

4. The work for General Course students of the Fourth Year will be Canadian History from the period of early discovery to Confederation, with special reference to the period 1763 to 1867.

Textbooks—

(i.) C. P. Lucas: Canada to 1763 (Historical Geography of the British Colonies, Vol. V., Part I.).
(ii.) H. E. Egerton: Canada, 1763-1901 (Historical Geography of the British Colonies, Vol. V., Part II.).
(iii.) Lord Durham: Report.
(iv.) Egerton and Grant: Canadian Constitutional Development.

The work in History will be subdivided for examination purposes as follows:

Third Year, Major Course—British History.

Christmas—

(i.) Constitutional History to 1485.
(ii.) Political History to 1485.
(iii.) Essay paper.

April—

(i.) Constitutional History after 1485.
(ii.) Political History after 1485.
(iii.) General paper, sources, etc.

Fourth Year, Major Course—General European History and Canadian History.

Christmas—

- (i.) European History, I., 1789-1815.
- (ii.) European History, II., 1815, 1860.
- (iii.) Essay paper.

April—

- (i.) European History, III., 1860-1878.
- (ii.) Canadian History.
- (iii.) General paper, sources, etc.

Third Year, General Course.

Christmas—

- (i.) British History and Imperial Expansion, 1485-1688.

April—

- (ii.) British History and Imperial Expansion, 1688 to present.

Fourth Year, General Course—

Christmas—

- (i.) Canadian History from beginning to Quebec Act, 1774.

April—

- (ii.) Canadian History from Quebec Act, 1774, to Confederation.

DEPARTMENT OF POLITICAL ECONOMY AND POLITICAL SCIENCE.

Archibald Brown Clark. M.A	*Professor*
Thomas Howden Fraser, M.A., LL.B.	*Lecturer*

The subjects studied in the Department of Political Economy include Economic Theory and the History of Theory; Foreign and Colonial Trade Policy—History and Theory; Economic History—Mediæval and Modern; The

Economic Functions of Government; Public Finance; and Political Science.

The following courses will be given during the Session 1913-1914:

(1) A *major* course in Political Economy—to be combined with another *major* course, or two *minor* courses in Philosophy, History, English, Latin, Greek, French or German, or with certain branches of Mathematics.

(2) A *minor* course in Political Economy—to be combined with a *major* course and another *minor* course in any of the above-mentioned subjects.

(3) A course in Political Economy for General Course students.

(4) A course in Political Science for students of the course in Philosophy, and also as an optional part of the Major Course in Political Economy.

(5) A course in Political Economy for Accountancy students.

THIRD YEAR.—MAJOR COURSE.

The Lectures will include a discussion of:

(A) *Economic Theory.*—The leading principles of Economics, together with the chief landmarks in the history of Economic Theory.

Nicholson, "Elements of Political Economy." Books 1 to 3.

Mill, "Principles of Political Economy" (Ashley's edition), Books 1 to 3.

L. L. Price, "Political Economy in England."

Lecture Hours: Mondays, Tuesdays, Thursdays, 9 o'clock to 10.

(B) *The History and Theory of Foreign and Colonial Trade Policy.*

Adam Smith, "Wealth of Nations," Book IV (and other parts referred to in the Lectures).

Nicholson, "A Project of Empire."

Bastable, "Theory of International Trade."

Lecture Hours: Wednesdays and Fridays, 9 o'clock to 10. and, at the option of the student, *either* (C) *or* (D).

(C) *Economic History—Mediaeval.*

Cunningham. "Growth of English Industry and Commerce," Vol. I. (Early and Middle Ages).

Lecture Hours: Tuesdays and Fridays, 12 o'clock to 1.

(D) *Political Science.*

Edward Jenks, "History of Politics."
Pollock, "History of the Science of Politics"
Mill, "Representative Government."
Bagehot, "English Constitution."

Note.—The student may take both sections (C) and (D) if the lecture hours permit, and it will not interfere with his work in other departmens.

Lecture Hours: Thursdays, 12 o'clock to 1; Fridays, 10 o'clock to 11.

THIRD YEAR.—MINOR COURSE.

Economic Theory and Economic History.—Lectures, together with:—

Nicholson, "Elements of Political Economy," Books 1 to 3.
Mill, "Principles of Political Economy," Books 1 to 3.
L. L. Price, "Political Economy in England."
Innes, "England's Industrial Development," Chapters I. to XI.

Lecture Hours: Mondays, Tuesdays, Thursdays, 9 o'clock to 10; Fridays, 12 o'clock to 1.

THIRD YEAR.—GENERAL COURSE.

Economic Theory and Economic History.—Lectures, together with:—

Nicholson, "Elements of Political Economy," Books 1 to 3.
L. L. Price, "Political Economy in England."
Innes, "England's Industrial Development," Chapters I. to XI.

Lecture Hours: Mondays, Tuesdays, Thursdays, 9 o'clock to 10; Fridays, 12 o'clock to 1.

COURSE FOR ACCOUNTANCY STUDENTS.

Lectures on the leading principles of *Political Economy*, together with the chief landmarks in the history of Economic Theory:—

Nicholson, "Elements of Political Economy," Books 1 to 3.
L. L. Price, "Political Economy in England."

Lecture Hours: The class will meet three hours per week throughout the session jointly with the students of the Major, Minor and General Courses of the Third Year, on Mondays, Tuesdays, Thursdays, 9 a.m. to 10 a.m.

THIRD AND FOURTH YEARS.—PHILOSOPHY COURSE.

Political Science.—

Bosanquet, "Philosophical Theory of the State."
Lecture Hours: Fridays, 9 o'clock to 10.

MAJOR COURSE.—FOURTH YEAR.

The Lectures will include a discussion of:

(A) *Economic Theory.*—Some of the more difficult problems in Economic Theory and the History of Theory not dealt with in the Third Year Course, together with a Critical study of Marshall's treatment of Economic Theory.

Marshall, "Principles of Economics."

Lecture Hours: Mondays and Thursdays, 11 o'clock to 12.

(B) *The Economic Functions of the State and Public Finance.*

Nicholson, Principles of Political Economy," Vol. 3, Book 5.

Adam Smith, "Wealth of Nations," Book 5
Mill, "Principles of Political Economy," Book 5.
Seligman, "Shifting and Incidence of Taxation."

Lecture Hours: Tuesdays and Fridays, 11 o'clock to 12.
and, at the option of the student, *either* (C) *or* (D).

(C) *Economic History—Modern.*

Cunningham, "Growth of English Industry and Commerce," Vol. II., Modern Times, Parts I. and II.
Lecture Hours: Mondays and Wednesdays, 12 o'clock to 1.

Or (D) *Political Science—Advanced.*

Aristotle, "Politics"; Hobbes, "Leviathan," Part II.; Locke, "Civil Government," Book II.; Rousseau, *"Contrat Social"*; and Sidgwick, "Elements of Politics," or Bosanquet, "Philosophical Theory of the State." For students of the Philosophy Course, Third and Fourth Years, Bosanquet only is prescribed.

Note.—The student *may* take *both* sections (C) and (D), if the lecture hours permit, and it will not interfere with his work in other departmens.

Lecture Hours: Wednesdays, 11 o'clock to 12; Thursdays, 10 o'clock to 11; and, for Philosophy students, Fridays, 9 o'clock to 10.

MINOR COURSE.—FOURTH YEAR.

Economic Theory and Economic History.—Lectures on some of the more difficult problems in Economic Theory not dealt with in the Third Year Course, together with the Economic Functions of Government and Public Finance, and Economic History—Modern.

Nicholson, Principles of Political Economy." Vol. 3, Book 5.

Mill, "Principles of Political Economy," Book 5.

Adam Smith, "Wealth of Nations," Book 5.

Innes, "England's Industrial Development." Chaps. 12 to 29.

Lecture Hours: Mondays, Tuesdays and Fridays, 11 o'clock to 12; Mondays, 12 o'clock to 1, and possibly Wednesdays, 12 to 1.

GENERAL COURSE.—FOURTH YEAR.

Economic Theory and Economic History.—Lectures, supplemented by:

Nicholson, "Principles of Political Economy," Book 5 of Vol. 3.

Mill, "Principles of Political Economy," Book 5.

Innes, "England's Industrial Development," Chaps 12 to 29.

Lecture Hours: Tuesdays and Fridays, 11 o'clock to 12; Mondays, 12 o'clock to 1.

The reading in Political Economy, in supplement of the Lectures, will be subdivided for examination purposes as follows, with the understanding that work not overtaken in the Lectures before Christmas will come within the scope of the April Examination:

Third Year, Major Course.

Christmas—

(1) Economic Theory, I.—Nicholson's "Elements of Political Economy," Introduction and Books I. and II.; Mill's "Principles of Political Economy," Introduction, Preliminary Remarks, and Books I. and II.; L. L. Price's "Political Economy in England," Chaps. I., II., III., VIII.

(2) Foreign and Colonial Trade Policy, I.—Adam Smith's "Wealth of Nations," Book II., Chap. V, Book IV., Chap. I. to VI., VIII.; Nicholson's "A Project of Empire," Chap. I. to XI

(3) Economic History, I. (B.C. 55 to A.D. 1272).—Cunningham's "Growth of English Industry and Commerce, Vol. I., pages 1 to 260.

(4) Political Science, I.—Jenks' "History of Politics"; Pollock's "History of the Science of Politics."

April—

(1) Economic Theory, II.—Nicholson's "Elements of Political Economy," Book III.; Mill's "Principles of Political Economy," Book III.; L. L. Price's "Political Economy in England," Chap. IV. to VII.

(2) Foreign and Colonial Trade Policy, II.—Bastable's "Theory of International Trade"; Adam Smith's "Wealth of Nations," Book IV., Chap. VII.; Nicholson's "Project of Empire." Chap. XII. to XVI.

(3) Economic History, II. (A.D. 1272 to 1558).—Cunningham's "Growth of English Industry and Commerce," Vol. I., pages 260 to 566.

(4) Political Science, II.—Mill's "Representative Government"; Bagehot's "English Constitution."

Fourth Year, Major Course.

Christmas—

(1) Essay.

(2) Economic Functions of Government.—Adam Smith's "Wealth of Nations," Book V., Chap. 1.; Mill's "Principles of Political Economy," Vook V., Chap. I., VIII. to XI.; Nicholson's "Principles of Political Economy," Book V., Chap. I. to IV., XIV, XIX.

(3) Economic History, 1. (A.D. 1558 to 1689).—Cunningham's "Growth of English History and Commerce," Vol. II., Part I., pages 1 to 402

(4) Political Science, I.—Aristotle's "Politics"; Hobbes' "Leviathan," Part II.; and Sidgwick's "Elements of Politics," Chap. I to X., XXVII. to XXXI., *or* Bosanquet's "Philosophical Theory of the State," Chap. I to V.

April—

(1) Economic Theory.—General paper, including, but not confined to, the subjects covered by Marshall's "Principles of Economics"

(2) Public Finance.—Adam Smith's "Wealth of Nations," Book V., Chap. II, III.; Mill's "Principles of Political Economy," Book V., hap. II. to VII.; Nicholson's "Principles of Political Economy," Book V., Chap. V. to XIII., XV. to XVIII; Seligman's "Shifting and Incidence of Taxation."

(3) Economic History, II. (A.D. 1689 to the present day).

—Cunningham's "Growth of English Industry and Commerce," Vol. II., Part I., pages 403 to 608, and Part II.

(4) Political Science, II.—Locke's "Civil Government," Book II.; Rousseau's "*Contrat Social*"; and Sidgwick's "Elements of Politics," Chap. XI. to XXVI., *or* Bosanquet's "Philosophical Theory of the State," Chap. VI. to XI.

Third Year, Minor Course.

Christmas—

(1) Economic Theory, I.—Nicholson's "Elements of Political Economy," Introduction and Books I and II.; Mill's "Principles of Political Economy," Introduction, Preliminary Remarks, and Books I. and II.; L. L. Price's "Political Economy in England," Chaps. I., II., III. and VIII.

April—

(1) Economic Theory, II.—Nicholson's "Elements of Political Economy," Book III.; Mill's "Principles of Political Economy," Book III.; L. L. Price's "Political Economy in England," Chap. IV. to VII.

(2) Economic History.—Innes' "England's Industrial Development," Chap. I. to XI.

Fourth Year, Minor Course.

Christmas—

(1) Economic Theory and Functions of Government.—Mill's "Principles of Political Economy," Book III. (the parts referred to in the Lectures), also Book V., Chap. I., VIII. to XI.; Adam Smith's "Wealth of Nations," Book V., Chap. I.; Nicholson's "Principles of Political Economy," Book V., Chap. I. to IV., XIV., XIX.

April—

(1) Economic Theory and Public Finance.—Mill's "Principles of Political Economy" (the parts referred to in the Lectures on Theory), also Book V., Chap. II. to VIII.; Adam Smith's "Wealth of Nations," Book V., Chap. II., III.; Nicholson's "Principles of Political Economy," Book V. to XIII., XV. to XVIII.

(2) Economic History. Innes' "England's Industrial Development," Chap. XII to XXIX.

Third Year, General Course.

Christmas—

(1) Economic Theory and Economic History, I.—Nicholson's "Elements of Political Economy," Books I. and II.; L. L. Price's "Political Economy in England," Chaps. I., II., III., VIII.; Innes' England's Industrial Development," Chap. I. to V.

April—

(1) Economic Theory and Economic History, II.—Nicholson's "Elements of Political Economy, Book III.; L. L. Price's "Political Economy in England," Chap. IV. to VII.; Innes' "England's Industrial Development," Chap. VI. to XI.

Fourth Year, General Course.

Christmas—

(1) Economic Theory and Economic History, I.—Mill's "Principles of Political Economy," Book V., Chap. I., VIII. to XI.; Nicholson's "Principles of Political Economy," Book V., Chap. I. to IV., XIV., XIX.; Innes' "England's Industrial Development," Chap. XII. to XV.

April—

(1) Economic Theory and Economic History, II.—Mill's "Principles of Political Economy," Book. V., Chap. I. to VII.; Nicholson's "Principles of Political Economy," Book V., Chap. V. to XIII., XV. to XVIII.; Innes' "England's Industrial Development," Chap. XVI. to XXIX.

Philosophy Course, Third and Fourth Years.

April—

(1) Political Science.—Bosanquet's "Philosophical Theory of the State."

Political Economy for Accountancy Students.

Christmas—

(1) Political Economy, I.—Nicholson's "Elements of Political Economy," Introduction and Books I. and II.; L. L. Price's "Political Economy in England," Chaps. I., II., III., VIII.

April—

(1) Political Economy, II.—Nicholson's "Elements of Political Economy," Book III.; L. L. Price's "Political Economy in England," Chap. IV. to VII.

The following is a general indication of the subjects to be discussed in the Lectures of the Third and Fourth Year Major Courses. Students of the Minor Courses, General Courses, Philosophy Course, and Accountancy Course take the Lectures on such of the under-mentioned subjects as are covered by the text-books prescribed for these Courses.

THIRD YEAR.

A. ECONOMIC THEORY.

Introductory.—Preliminary Definition of Political Economy. Wealth—Explication of the Conception. The Problem of Definition in Political Economy. Character and Scope of the Science. Methods of Investigation—the Deductive and the Inductive—their Mathematical and Historical Extremes. Influence of the Historical Conception—the Study of "Origins." Economic Laws. Relation of Economic Science to Practice. Departments of the Science, and Principles of Classification.

Consumption.—Human Wants in Relation to Activities. Law of Diminishing Utility. Total and Marginal Utility. Influence of the Conception of Marginal Utility on the Development of Economic Theory. Theory of Consumers' Surplus.

Production.—Its Essence. Its Relation to Consumption. History of the Theory of Production—the Physiocrats. Material and Immaterial Production. Agents of Production—(1) Nature—its Functions—its Gifts, Limited and Unlimited. (2) Labour—Definition of the Term. Determining Elements of "Quantity of Labour." (3) Capital—Definition of the Term. Different Species. Controversial Points.

Causes Determining the Productiveness of Industry:—(1) The Constituents of Natural Environment. (2) The Causes Affecting Efficiency of Labour—(a) Individual Efficiency, (b) Organization of Industry. Effects of Machinery. Localisation of Industry. Production on a Large and a Small Scale in Agriculture and in Manufactures. Joint-Stock Companies. Laws of Diminishing and Increasing Return. Principle of Population. Growth of Material Capital. Influence of Progress on Production.

Distribution—Meaning of the term. Character of the Laws of Distribution. The Economic Principle of Distribution. Private Property in its Economic Aspects. Bequest and Inheritance. Property in Land. Compensation for Expropriation. Socialism. *The Three Species of Income*—(1) Wages: Real and Nominal Wages. The General Rate of Wages—Historical Theories. Differences of Wages in Different Employments—Net Advantages—Mobility of Labour. (2) Interest—Its Nature and Determining Causes—Mobility of Capital. Profits—Analysis. How far a Tendency to Equality of Profits. (3) Rent—Uses of the Term. Economic Rent: the Ricardian Theory. Effects on Rent of Improvements in Agriculture. Effects of Improvements in Transport, etc. Practical Determination of Rents. Influence of Progress on Distribution.

Exchange.—I.—Theory of Value—Value and Price. Laws of Demand and Supply. Elasticity of Demand and Supply. Equation of Demand and Supply. Market Value. Changes in Demand and Supply, and their Effects on Market Value. Normal Value. Cost of Production. Case of Joint Products. Industrial and Commercial Competition. Interaction of Utility, Cost, and Value. Effects of Changes in Demand and Supply on Normal Value. Economic Rent in Its Relation to Value. Profit-rent. Monopoly-rent. Quasi-rent. Monopoly Value. Wages, Interest, and Rent as Cases of Value. Does the Theory of Value exhaust the Problem of Distribution? Influence of Progress on Values.

II.—The Mechanism of Exchange.

(1) Money—Its Functions. Importance of Comparative Stability of Value. Measurement of variations in its Value. Index Numbers. Characteristics of good money material. Mint Price and Market Price of Gold. Standard and Token Money. Gresham's Law. Debasement and Depreciation.

(2) Relation between Money and Prices—The Quantity Theory. Inconvertible Paper Currency. Credit—its Forms and its Basis. Monetary Interdependence of Nations. The Depreciation of Silver—its effect on general gold prices. Bimetallism.

(3) Banking—its Historical Development. Scottish Banking. Canadian Banking. Regulation of Bank Note Issues. The English Bank Charter Act of 1844. Deposit

Banking. The Money Market. The Reserve. The Rate of Discount. Commercial Crises.

B. FOREIGN AND COLONIAL TRADE POLICY.

(a) Historical Evolution of the Theory of Foreign Trade: Mediæval Protection. The "Balance of Bargain System. The Mercantile System. Adam Smith and the System of Natural Liberty. His Critique of the Principle of Mercantilism and Its Expedients. The Old Colonial System. Adam Smith's Scheme of Imperial Federation. Colonial Policy since 1776. The Manchester School.

(b) The Theory of International Trade and International Values. International Distribution of Gold. The Foreign Exchanges. Influence of Foreign Trade on the Internal Distribution of Wealth. The Argument for Free Trade. List and Modern Protectionist Theory. The Policy of Preferential Tariffs within the British Empire.

C. ECONOMIC HISTORY—MEDIÆVAL.

(a) The Scope and Method of Economic History and its relation to Economic Theory. The Romans in Britain. The English Occupation. Danish Influence. The English Village Community. The Manor. Domesday Survey. Foreign Intercourse. The Mediæval Town. The Gild Merchant. The Usury Laws. Mediæval and Modern Prices—Just and Normal.

(b) Decay of the Manor. Transition from Natural to Money Economy. The Black Death. The Statutes of Labourers—Contrast between Mediæval and Modern Legislation. The Economic Condition of the Labourer in the Fifteenth Century and Now. Mediæval Enclosures. The Origin and Growth of the Poor Law. The Craft Gilds—Growth and Decay. The Mediæval Tax System. Commercial Policy—Mediæval Protection. The Staple. The Merchant Adventurers. The Mercantile System. History of English Currency—The Tudor Debasement.

D. POLITICAL SCIENCE—ELEMENTARY.

(a) *The History of Political Theories generally, but especially since the Sixteenth Century*, with special reference to the theories of Hobbes (*Leviathan*, Part II "of Commonwealth), Locke (*Civil Government*, Book II), and Rousseau (*Contrat Social*).

(b) *The State*—Its Origin, Nature, Organisation and Instruments. Types of Society—savage, patriarchal and political. The State and Feudalism. Early Political Institutions. The State in relation to Property, Justice, Legislation and Administration. Forms of Government. Representative Government. The Party System. Parliamentary and Presidential Government. The Bicameral System. The English Constitution. Federal Government.

In the course of the lectures reference will be made not only to the Text-books prescribed, but frequently also to Marshall's "Principles of Economics", Sidgwick's "Principles of Political Economy", Nicholson's "Principles of Political Economy", Taussig's "Principles of Economics", Irving Fisher's "Purchasing Power of Money", Barbour's "Standard of Value", Bagehot's "Lombard Street", Withers' "The Meaning of Money", Conant's "Principles of Money and Banking", Clare's "Money Market Primer and Key to the Exchanges", Goschen's "Theory of the Foreign Exchanges", Seebohm's "English Village Community", Vinogradoff's "Villainage in England" and "Growth of the Manor", Ashley's "Economic History", Graham's "English Political Philosophy", Woodrow Wilson's "The State", and other works—all of which may be obtained from the Class Library.

FOURTH YEAR.

A. ECONOMIC THEORY.

A discussion of some of the more difficult problems in Economic Theory and the History of Theory not dealt with in the Third Year Course—more especially of problems arising in connection with the Theory of Value; Money, Credit, and Prices; Banking; the Money Market; and the Foreign Exchanges. The Lectures in this section will also include, for Major Course students only, a critical study of Marshall's treatment of Economic Theory.

B. THE ECONOMIC FUNCTIONS OF GOVERNMENT AND PUBLIC FINANCE.

(a) *Economic Ideals*—Natural Liberty and Maximum Utility. The Grounds and Limits of the *Laisser-faire* Principle. The Methods and Limitations of Governmental Interference. Free Trade and Protection. Colonial Policy.

(b) *State Revenue and State Expenditure*—Characteristics of Taxation. General Principles of Taxation. Direct and Indirect Taxes. Incidence of Taxation. Characteristics and Principles of Public Expenditure. Local Finance. National Credit and National Debts. The Budget.

C. ECONOMIC HISTORY.—MODERN.

(a) The Transition from Mediaeval to Modern Economic Conditions. The Elizabethan Regulation of Industry and Commerce. History of the English Poor Law. The Stuart Regime. Seventeenth Century Monopolies. Privileged Foreign Trade Companies. Colonization and Colonial Policy in the Seventeenth Century.

(b) Commercial Treaties. The Navigation Acts and the Colonies. British Colonial Development and Policy since 1776. Economic Relations of Great Britain and Ireland. Origin and Growth of the National Debt. History of English Currency and Banking. Agricultural Progress. The Industrial Revolution. The Poor Law—Abuse and Reform. History of Trade Unionism. The Factory System and Factory Legislation. History of the Corn Laws. The Free Trade Movement. History of Taxation in England. Financial Reform.

D. POLITICAL SCIENCE.—ADVANCED.

(a) *The History of Political Theory*—A more extended and critical study of the development of Political Theories from Plato and Aristotle to Spencer and Green.

(b) *The Nature and Ends of the State*—The Origin of the State—the Contract Theory. Natural Law. Sovereignty. International Relations. The Functions of Government. Limits of Governmental Interference. Individualism. Socialism. The Structure of Government: the Relations of Legislature, Executive, and Judiciary. Federal Government. Colonial Government.

In the course of the Lectures, reference will be made not only to the Text-books prescribed, but also to Sidgwick's "Principles of Political Economy," Bastable's "Public Finance," Buxton's "Finance and Politics," Seligman's "Income Tax," Taussig's "Tariff History of the United States," Jenks' "The Trust Problem," G. L. Beer's "Origins of the British

Colonial System," Bogart's "Economic History of the United States," Webb's "History of Trade Unionism," Hutchins and Harrison's "History of Factory Legislation, and other works; and in Political Science, to the views of the following authors: Austin, Bentham, Bluntschli, Woodrow Wilson, Maine, Bryce, Lowell, Dicey, G. C. Lewis, J. S. Mill, F. C. Montague, Herbert Spencer, T. H. Green, Muirhead, D. G. Ritchie, Jethro Brown and Warde Fowler—copies of whose works may be obtained from the Class Library.

DEPARTMENT OF MATHEMATICS AND ASTRONOMY.

NEIL BRUCE MACLEAN, M.A.	*Professor*
LLOYD A. H. WARREN, M.A.	*Assistant Professor*
HAROLD R. KINGSTON, M.A.	*Lecturer*

The instruction in the Department of Mathematics and Astronomy consists of a series of courses of lectures and class recitations. These lectures are illustrated by models and diagrams, while the courses in Astronomy are supplemented by with the Equatorial Telescope and with the Transit.

The instruction is conducted for the following classes of students:

(a) Students pursuing courses in Engineering.

(b) Students of the Second Year in Arts who select Mathematics or Astronomy as one of their optional subjects.

(c) Students of the Third and Fourth Years in Arts who desire to proceed to a degree by pursuing the prescribed course in Mathematics and Astronomy.

(d) Students who have elected one of the divisions of the Natural and Physical Science Course containing Mathematics or Astronomy or both.

(e) Students of the General Course in Arts who select Mathematics or Astronomy as one of their optional subjects in either the Third or Fourth years of their course.

(f) Students of the Third and Fourth Years in Arts, pursuing the Special Course in Political Economy and Mathematics.

(g) Students proceeding to the degree of B.Sc.

To illustrate the work in Geometry, Mensuration and Spherical Trigonometry, the Department has secured a considerable number of the best wood, plaster of Paris and thread models available. For this collection new ones are obtained from year to year.

For the work in Astronomy there have been obtained a celestial globe, a slate globe, a 5-inch equatorial telescope and about four hundred lantern slides, made from negatives taken principally at the Yerkes and Lick Observatories. To these new ones are being added from time to time.

The substance of the lecture courses is embodied in the following schedule:

ENGINEERING.—FIRST YEAR.

1. *Analytical Geometry.*—An elementary course in Analytical Geometry of two dimensions.

First Term—Co-ordinates, the straight line, and the circle. Baker's Analytical Geometry. Two hours per week.

Second Term—The more important properties of the circle, parabola, ellipse and hyperbola (cf. Course 13, page 138). Baker's Analytical Geometry. Two hours per week. *Professor MacLean.*

2. *Algebra.*—Binomial theorem, logarithms, interest and annuities, exponential theorem, logarithmic series, undetermined coefficients, and partial fractions. Hall and Knight's Elementary Algebra, with selections from Hall and Knight's Higher Algebra. Two hours per week, First Term. *Professor MacLean.*

3. *Solid Geometry.*—An elementary course in synthetic solid geometry. Descriptive properties of lines and planes in space; the polyhedra, the cone, the cylinder and the sphere; areal relations among line segments of spatial figures; volumes, prismoidal formula. Dupuis' Solid Geometry to page 131 (cf. Course 12, page 138). Two hours per week, Second Term.

Assistant Professor Warren

4. *Mensuration.*—The mensuration of plane and solid figures. One hour per week, Second Term.

Assistant Professor Warren

5. *Plane Trigonometry.*—A general review of the elements of Plane Trigonometry, with applications to practical problems; inverse notation. Two hours per week, First Term.

Assistant Professor Warren

6. *Spherical Trigonometry.*—Derivation of formulae; solution of the spherical triangle; inscribed and circumscribed circles; areas of spherical triangles and spherical polygons; applications to practical problems. Spherical Trigonometry, by Todhunter and Leathem (cf. Course 17, page 139). Two hours per week, Second Term. *Professor MacLean.*

ENGINEERING.—SECOND YEAR.

7. (a) *Differential and Integral Calculus.*—An elementary course in Differential and Integral Calculus, with practical applications.

First Term—Functions; limits; derivatives; measurement of rates; motion in curved paths; maxima and minima; fundamental derivatives and integrations depending thereon; areas and lengths of curves; volumes and surfaces. Five hours per week.

Second Term—Differentiation and Integration continued; implicit functions and partial derivatives; tangents and normals; radius of curvature; evolutes; expansions; formation of differential equations. Three hours per week. *Assistant Professor Warren*

(b) *Mechanics.*—The fundamental principles and laws of mechanics; statics of flexible cords, suspension bridge, catenary; strings stretched over rough surfaces; centres of gravity; moments of inertia; centres of pressure. Two hours per week, Second Term.

Assistant Professor Warren

ENGINEERING.—THIRD YEAR (CIVIL).

8. *Practical Astronomy.*

First Term—Systems of co-ordinates, the constellations, the telescope, the shape and density of the earth, Kepler's laws, the law of gravitation, tides, eclipses of the moon, apparent time, mean time, sidereal time, the equation of time. Two hours per week.

Reference—Moulton's Introduction to Astronomy.

Second Term—The ephemeris, the transit instrument, Bessel's formula, Mayer's formula, transformation of coordinates, determinations of latitude and longitude and of time, laying off of a meridian, refraction, aberration, parallax, practical work with the transit. Two hours per week.

Professor MacLean.

ENGINEERING.—THIRD YEAR (ELECTRICAL).

9. *Differential Equations.*—An elementary course on the solution of simple differential equations, with practical applications to problems of mechanics, physics and electricity. Cohen's Differential Equations (cf. Course 23, page 141). Two hours per week, First Term.

Professor MacLean.

ARTS.—SECOND YEAR.
OR THIRD OR FOURTH YEAR (GENERAL COURSE).

10. *Algebra.*—Hall and Knight's Higher Algebra, Chapters 8, 9, 12, 13, 14, 17, 18, 22, 23. Two hours per week, First Term.

Professor MacLean.

11. *Plane Trigonometry.*—Hall and Knight's Plane Trigonometry, from page 220 to end of Chapter XXIII. Two hours per week, First Term.

Assistant Professor Warren

12. *Solid Geometry.*—An elementary course in Synthetic Solid Geometry. Descriptive properties of lines and planes in space; the polyhedra, the cone, the cylinder, the sphere, areal relations among line segments of spatial figures; volumes, prismoidal formula. Dupuis' Solid Geometry to page 131. Two hours per week, Second Term.

Assistant Professor Warren

13 *Analytical Geometry.*—A continuation of the course in the First Year, establishing the more important properties of the circle, parabola, ellipse, and hyperbola. Baker's Analytical Geometry, Chapters 6 9, inclusive. Two hours per week, Second Term.

Professor MacLean.

(N.B.—*Two papers will be set.*—One on Algebra and Trigonometry at the end of the First Term, and one on Geometry at the end of the Second Term.

14. *Algebra.*—A continuation of Course 10. Hall and Knight's Higher Algebra, Chapters 19-26, inclusive. Chapter 29. Two hours per week, First Term.

Professor MacLean.

15. *Determinants and Theory of Equations.*—A study of the formation and uses of determinants and operation on matrices; the elements of the theory of equations, solutions of the cubic and biquadratic, etc. Hall and Knight's Higher Algebra, Chapters 33-35, inclusive.

References—Weld's Determinants, Burnside and Panton's Theory of Equations. Two hours per week, Second Term.

Professor MacLean.

16. *Plane Trigonometry.*—An advanced course in trigonometry; Demoivre's theorem; complex quantities; functions expressed as series; summation of series; factorization, etc. Todhunter and Hogg's Trigonometry, Chapters 19-24, inclusive.

References—Locke's Higher Trigonometry, Hobson's Trigonometry. Two hours per week, Second Term.

Professor MacLean.

17. *Spherical Trigonometry.*—Derivation of formulae; solution of the spherical triangle; applications. Todhunter and Leathem's Spherical Trigonometry. Two hours per week, Second Term.

Professor MacLean.

18. *Analytical Geometry.*

First Term—An advanced course in Analytical Plane Geometry, Polar Equation of a Conic, etc. Two hours per week.

Second Term—An elementary course in Analytical Solid Geometry. Two hours per week.

References—Baker's Analytical Geometry, C. Smith's Analytical Plane Geometry, C. Smith's Analytical Solid Geometry.

Professor MacLean.

19. *Modern Synthetic Geometry, Plane and Solid.*

First Term—Solid Geometry.—Figures of translation and revolution; mean centres; Pappus' theorems; developable surfaces; perspective projections; anharmonic and harmonic relations; geometrical conics; theorems of Appolonius; spherical geometry; polar triangles; spherical excess; cases of ambiguity. Dupuis' Solid Geometry. Two hours per week.

Second Term—Plane Geometry.—Modern ideas in geometry; geometric continuity; geometric extensions; ranges and pencils of four; collinearity and concurrence; perspective; inversion and inverse figures; pole and polar; radical axis; mean centres of points and multiples; centres of similitude; harmonic and anharmonic ratios; theorems of Pascal and Brianchon; polar reciprocation; homography and involution. Dupuis' Plane Geometry. Two hours per week.

References—Durell, Lachlan, Veblen and Young.
Two hours per week.

Assistant Professor Warren

20. *Differential and Integral Calculus and Mechanics.* Same as Course 7 (a) and (b).

References—Granville, Murray, Osgoode.
Five hours per week.

Assistant Professor Warren

ARTS.—FOURTH YEAR.

21. *Differential Calculus.*—An advanced course.

First Term—Partial derivatives; *n*th derivatives; Leibnitz's theorem; expansion of functions; maxima and minima of functions of the two independent variables; singular forms; change of the independent variable; general theory of curves and surfaces; tangents, normals, etc.; intersection of curves. Two hours per week.

Second Term—Equation of curves; derived curves, pedals, inverse curves, polar reciprocals; envelopes; asymptotes; singular points; order of contact; curvature; evolutes and involutes; curve tracing.

References—Edwards, Murray, Williamson.
Two hours per week.

Assistant Professor Warren

22. *Integral Calculus.*—An advanced course.

First Term—Integral forms; formulae of reduction; hyperbolic functions; areas; lengths of curves; volumes and surfaces. Two hours per week.

Second Term—Double and triple integration, with applications; definite integrals; beta and gamma functions.

References—Williamson, Todhunter.
Two hours per week.

Assistant Professor Warren

23. *Differential Equations.*

First Term—Same as Course 9.

Second Term—A continuation of the first term's work; applications to geometry and mechanics. Cohen's Differential Equations. Two hours per week.

References—Murray, Johnson, Forsyth.

Professor MacLean.

24. *Analytical Statics.*

First Term—A study of the principles and laws of statics and their derivation; vectors; centroids; equilibrium of forces in a plane, or in space; statics of flexible cords; friction; statics of a system of particles, and of a rigid body; couples. Two hours per week.

Second Term—Miscellaneous problems on friction; equilibrium on a smooth or rough plane curve, skew curve, or surface; centre of gravity; work; potential energy; stable and unstable equilibrium.

References—Jeans, Bowser, Todhunter.
Two hours per week.

Assistant Professor Warren

25. *Dynamics.*—Lectures based on Tait and Steele's Dynamics of a Particle. Two hours per week. Second Term.

Professor MacLean.

26. *Finite Differences.*—A course of lectures on the principles of the Calculus of Finite Differences, and the Theory of Operators. Fundamental difference forms; expansion in factorials; symbols of operation; Herschel's theorem; secondary form of Maclaurin's theorem; interpolation; La Grange's formula; methods of approximation; statistical applications; mechanical quadrature; finite integration; Euler-Maclaurin sum series; approximate summation; increase of convergency; linear difference equations.

References—Boole's Finite Differences, Institute of Actuaries' Text-book, Part II.
Two hours per week, First Term.

Assistant Professor Warren

27. *Theory of Probability and Life Contingencies.*—A course of lectures on the mathematical theory of probability, and on the elements of the Theory of Life Annuities, Life Assurances and Life Contingencies.

References—Hall and Knight's Higher Algebra, Moir's Life Assurance Primer; King, Theory of Finance; The Institute of Actuaries' Text Book, Parts I. and II.
Two hours per week, Second Term.

Professor MacLean.

28. *Descriptive Astronomy.*

.*First Term*—Same as given during first term of Course 8.

Second Term—Time, the moon, eclipses, the solar system, the planets, comets and meteors, the sun, the evolution of the Solar System. Two hours per week.

Reference Books—Moulton, "Introduction to Astronomy"; Young, "Elements of Astronomy"; Young, "General Astronomy"; Barlow and Bryan, "Mathematical Astronomy"; Godfray, "A Treatise on Astronomy"; Campbell, "Elements of Practical Astronomy"; Chauvenet, "Astronomy."

Professor MacLean.

DEPARTMENT OF PHYSICS.

Frank Allen, M.A., Ph.D., F.R.S.C. .... *Professor*
R. K. McClung, M.A., D.Sc., F.R.S.C....... *Assistant Professor*
O. T. Anderson, B.A. .... *Demonstrator*

Course I. *Professor Allen.*

To be taken by students of the First Year in Medicine (compulsory), students of the First Year in Arts (optional), and students of the Third or Fourth Years in Arts in the General Course (optional).

(NOTE—Students intending to take any of the divisions of the Special Course in Natural and Physical Science or the Special Course in Mathematics are strongly urged to elect this course in their First Year.)

Part I.

Mechanics and Hydrostatics—

Velocity, acceleration, Newton's Laws of Motion, composition and resolution of vectors, systems of units, force gravitation, mass, weight, momentum, equilibrium, centre of gravity, simple harmonic motion, the pendulum, friction, motion of rotation, the gyroscope, energy, work, machines, conservation of energy, properties and constitution of matter.

Pressure at a point, transmission of pressure, density, barometer, Boyle's Law, pumps, syphon, surface tension, capillarity, osmosis, diffusion, kinetic theory of gases.

Heat—

Theory of heat, production of heat, temperature, expansion thermometry, calorimetry, specific heat, fusion, vaporization, regelation, hygrometry, Charles' Law, spheroidal state, critical state, liquefaction of gases, convection, conduction, radiation, radiometer, First Law of Thermodynamics, mechanical equivalent of heat, heat engines, theory of sun's heat, dissipation of heat, production of heat by radioactivity.

Part II.

Magnetism—

Laws of magnetic force, lines of force, magnetic induction, molecular theory of magnetism, diamagnetism, paramagnetism, terrestrial magnetism.

Electricity—

Laws of electrostatics, characteristics of electric charges, induced charges, influence machines, electroscope, Leyden jar, condenser, electric current, batteries, electromotive force, potential, resistance, Ohm's Law, galvanometers electrolysis, Joule's Law, Ampere's Laws, induced currents, thermo-electricity, electro-magnetism, telegraph, telephone, electric light, electrical machinery, alternating currents, transformer, induction coil, electric waves, radio telegraphy, discharge of electricity through gases, cathode rays, Roentgen rays, radio-activity.

Sound—

Production of sound, velocity, reflection, refraction, pitch, intensity, quality, musical scale, resonance, interference, beats, vibration of plates, rods, strings and air columns, musical instruments, perception of sound by the ear, consonance, dissonance.

Light—

Theories of light, velocity, reflection, refraction, photometry, dispersion, the spectrum, spectroscopy, absorption of light. color, fluorescence, phosphorescence, opalescence, interference, diffraction, double refraction, polarization, optical instruments, the eye, color vision, color blindness, effect of magnetism on light.

COURSE 2. *Mr. Anderson.*

Mechanics, Heat and Sound.

In this course special attention is given to the derivation of formulae and the solving of problems.

To be taken by students of the Third Year in Arts in the course in Mathematics and in any division of the Course in Natural and Physical Science.

COURSE 3. *Professor Allen.*

Electricity, Magnetism and Light.

This course is similar to Course 2.

To be taken by students of the Fourth Year in Arts in the course in Mathematics and in any division of the course in Natural and Physical Science.

COURSE 4. *Dr. McClung.*

Mechanics, Heat and Sound.

This course is designed especially for Engineering students. The lectures involve the main principles of Mechanics, Heat and Sound, with special attention to their practical applications and to the solving of problems.

Students are to perform in the laboratory a series of experiments as in Course 6.

To be taken by students of the First Year in Engineering.

Two hours per week. Time to be arranged.

COURSE 5. *Dr. McClung.*

Electricity, Magnetism and Light.

This course is similar to Course 4.

Students will perform in the laboratory a series of experiments as in Course 7.

COURSE 6.

Dr. McClung, Mr. Anderson.

Laboratory Course in Mechanics, Heat and Sound.

The Theory and Methods of Physical Measurements. Students are to perform an extensive series of experiments, and the results of each experiment are to be presented in a suitable report. Whenever possible, graphical methods are to be used. It is highly desirable that students should have an elementary knowledge of Analytical Geometry and Calculus.

To be taken by students of the Third Year in Arts in the course in Mathematics and in any division of the course in Natural and Physical Science and by students of the First Year in Engineering. Each student will take one period per week.

Tuesday and Thursday, 10 to 1 o'clock.

COURSE 7.

Dr. McClung, Mr. Anderson.

Laboratory Course in Electricity, Magnetism and Light.

Similar to Course 6.

To be taken by students of the Fourth Year in Arts in the course in Mathematics and in any of the divisions of the course in Natural and Physical Science, and by students of the Second Year in Engineering. Each student will take one period per week.

Tuesday and Thursday, 10 to 1 o'clock.

COURSE 8. *Dr. McClung.*

Electrical Measurements.

This course comprises a more advanced study, both theoretical and practical, of electrical measurements, and is especially suited to students in Electrical Engineering. It will involve the use of electrical standards, quantitative measurements of capacity of condensers, self and mutual induction, magnetic induction and hysteresis, potentiometer measurements, high and low resistance and photometry.

To be taken by students of the Third Year in Electrical Engineering. Other students may take this course by special permission.

Time to be arranged.

TEXT BOOKS.

Gage's Principles of Physics (Goodspeed).
A Text Book of Physics. Watson.
The Tutorial Physics.

EXAMINATIONS.

Students taking Course 1 above will be examined at Christmas on the work of Part I. of the course, and in April on the work of Part II. In the case of Courses 2, 3, 4 and 5, an examination will be set at Christmas on the work covered during the first term, and in April on the work covered during the second term. The right is reserved to the examiner to include in the April examination questions on the work of the first term, if he so desire.

ORIGINAL RESEARCH.

The laboratory and its equipment are available wherever possible to anyone desirous of engaging in original investigation in Physics.

DEPARTMENT OF BOTANY

A H. Reginald Buller, B.Sc., Ph.D., D.Sc., F.R.S.C....*Professor*

Course 1.

This course is intended for students of the Second Year in Arts electing Botany in connection with the Natural Science option, and students of the Third Year in Arts and in Divisions C, D or E of the course in Natural and Physical Science.

Lecture Days—Wednesdays and Fridays, at 3 p.m., throughout the session.

Laboratory—For students of the Third Year only—Thursdays, 10 to 12.

Classification of Objects—Comparison of living and non-living matter, and of plants and animals.

The Morphology of the Seed; germination; the external morphology of the seedling; the physiology of germination; the general nature of the reserve food-stuffs; the relations of the seedling with external conditions and natural forces; the theory of irritability; growth to exhaustion, and the general conditions of active life and self-nutrition.

The general morphology of the Plant Body, and the principal modifications in form and distribution of the vegetable members, Root, Shoot and Leaf.

Protoplasm as the physical basis of life; the Cell, and its principal modifications for special purposes; development and distribution of the Tissues considered especially from a physiological standpoint.

The Leaf as a bio-anatomical study; epidermis; vascular bundles, ground-tissue, intercellular spaces.

The internal morphology of the Stem in its chief modifications; the results of cambial activity; the secondary protective tissues, Cork and Bark, the Root.

The Bud; the principal characteristics of increase in length in shoot and root.

The phenomena of climbing, and illustrations of special powers of movement.

The elementary facts in the Nutrition of the plant, including the nature and sources of the raw material of food, and the constitution of the soil; absorption and the transpiration current; the nature and functions of chlorophyll; the broad principles of metabolism, and the distribution, storage, and utilization of its products. Respiration.

Nutrition without chlorophyll, and special fermentative changes, illustrated by Yeast, Bacteria and Molds. Degrees of Parasitism in Flowering Plants. Insectivorous Plants.

Reproduction, asexual and sexual, further illustrated by Spirogyra, Vaucheria, Fucus and Agaricus. The primary divisions of the Vegetable Kingdom, viz.: Thallophyta, Bryophyta (illustrated by a moss plant), Pteridophyta (a fern plant), and Phanerogamia (flowering plants).

The general character and structure of the reproductive organs in Phanerogamia; pollination, and its methods; fertilization; the development of the seed and the fruit; seed protection and dispersal; the natural spread of plants, and its limitations.

The Flower, and its chief modifications in structural plan Examples of Natural Orders.

COURSE 2.

This is a course of about 40 lectures to students of the Fourth Year in Arts in Divisions C, D and E of the course in Natural and Physical Science, and students of the Fourth Year in Science.

Lecture Days—Tuesdays and Thursdays, 9—10 a.m., throughout the session, and one other hour each week, to be arranged.

Laboratory—Tuesday, 10 a.m. to 1 p.m., and Friday, 11 a.m. to 1 p.m.

Life History and Classification of Plants.

The morphology and physiology of the chief groups of the Vegetable Kingdom and their most important subdivisions, viz.:

Thallophyta—Myxomycetes, Cyanophyceæ, Schizomycetes (Bacteria), Diatomaceæ, Conjugatæ, Chlorophyceæ, Phæophyceæ, Rhodophyceæ, Characeæ, Hyphomycetes.

Bryophyta—Hepaticæ, Musci.

Pteridophyta—Filices, Hydropterideæ, Equisetaceæ, Lycopodiaceæ, Selaginellaceæ.

Phanerogamia (*Spermophyta*)—Gymnaspermæ, Angiospermæ.

Physiology—Students are expected to read up the general physiology of plants from text-books and special papers. The laboratory work will illustrate the processes of absorption of food materials, transpiration, carbon assimilation, respiration, growth, and movement. Practice will be given in the preparation of pure cultures of bacteria, yeast, moulds and other fungi. Enzymes will be extracted and their action studied.

COURSE 3.

This is a course for students of the Fifth Year in Science (for the B.Sc. degree). The work will include:

(1) A course of lectures on the structure and classification of flowering plants

(2) A course of lectures on Variation, Heredity and Evolution

(3) Twelve hours practical work each week.

FIELD WORK.

At the beginning of the session there will be several excursions to the prairie, woods and river side for the purpose of studying the algæ, fungi, and flowering plants in relation to their environment. Students are recommended to acquaint themselves with the Canadian orders of flowering plants during the summer vacation.

THE LABORATORY.

The Laboratory—The Botanical Department includes the lecture theatre, professor's room, and the laboratory. The latter has one room devoted to plant physiology and one to morphology. There is also a small greenhouse and a dark room for photographing.

Research Work—The laboratory will be opened and encouragement given to any one desiring to carry on research on some botanical problem.

EXAMINATIONS.

Examinations will be set at Christmas on the portions of the lecture courses in Botany covered during the first term, and in April on the portions covered during the second term. The right is reserved to the examiner, however, to include in the April examinations questions on the work of the first term, if he so desire. Practical examinations are held only in April.

DEPARTMENT OF GEOLOGY AND MINERALOGY

ROBERT C. WALLACE, M.A., Ph.D., D.Sc., F.G.S.......*Professor*

COURSE 1.

LECTURE-COURSE ON GENERAL GEOLOGY.

Tuesdays and Thursdays, 2 to 3 p.m.

Materials of the Earth's Surface.—The composition of the lithosphere; the more commonly occurring minerals; classification of rocks; the main types of igneous, sedimentary and metamorphic rocks.

Dynamical Geology—The forces involved in geological processes; action of the atmosphere, land water, ground water, snow and ice, ocean and lakes; earthquakes and slow crustal movements; vulcanism, its causes and geological significance.

Physiographical Geology—The main topographical features of the earth's surface, as resulting from dynamical agencies; illustrations drawn from local topography.

Tectonic or Structural Geology—The various structures shown by the rocks of the earth's crust; stratification, unconformity, jointing, faulting, folding and schistosity.

Economic Geology—Relation of soils to the rocks; water supply; ores and ore deposits, with special reference to Canadian resources.

Palaeontology—Fossils; their preservation in the rocks; interdependence of the fossil record and stratigraphy; contributions of the plant and animal kingdom.

Historical Geology.—Hypotheses regarding the origin of the earth; methods of estimating the age of the earth; the systems in the Precambrian, Palaezoic, Mesozoic, Cainozoic and Quaternary eras; the evolution of plant and animal life; typical fossils of the various systems; the historical geology of Canada, and particularly of Western Canada.

The lectures will be illustrated by lantern projections, maps, models, and specimens of rocks, minerals and fossils.

This course will be taken by students of the Second Year in Arts taking the Natural Science option, who elect Geology as one of their subjects, and by students of the Third or Fourth Years in Arts in the General Course, by students of the Third Year in Arts in Divisions A, C and E of the course in Natural and Physical Science, by students of the Second Year of the B.Sc. Course, and by students of the Third Year in Civil Engineering (see page 186). Separate papers will be set for the Second, Third and Fourth Years.

For the students who are not taking the class of Practical Geology, a few demonstrations on Rocks, Minerals and Fossils will be arranged at suitable hours.

Text-books—
- Chamberlin and Salisbury's Geology (Shorter Course); or
- Blackwelder and Barrow's Elements of Geology; or
- Norton's Elements of Geology; with
- Miller's Minerals and How They Occur.

Books for reference—
- Chamberlin and Salisbury's Geology (3 Vols.).
- Young and Brock's Geology and Economic Minerals of Canada.

COURSE 2.

CLASS OF PRACTICAL GEOLOGY.

Thursdays, 3 to 5 p.m.

Systematic examination of minerals by blowpipe and other dry way tests; identification of the commoner minerals and rocks; mapping of geological sections; study and identification of type fossils.

This course will be taken by students of the Third Year in Arts in Divisions A, C and E of the course in Natural and Physical Science, by students of the Third Year of the B.Sc. Course, and by students of the Third Year in Civil Engineering (see page 186).

COURSE 3.

LECTURE COURSE ON MINERALOGY AND CRYSTALLOGRAPHY.

Wednesdays and Thursdays, 12 to 1 o'clock.

The fundamental laws of crystallography; crystallographic representation in stereographic projection; the classes of the triclinic, monoclinic, rhombic, tetragonal, hexagonal, trigonal, cubic systems (Groth's nomenclature); the optical and other physical properties of crystals.

The isomorphic, polymorphic and morphotropic relationships of minerals; classifications of minerals according to chemical constitution; systematic study of minerals.

The lectures will be illustrated by crystal models, mineral specimens and optical demonstrations.

This course will be taken by students of the Third Year in Arts in Divisions A, C and E of the course in Natural and Physical Science, and by students of the Third Year of the B.Sc. Course.

Text-books—

Rogers' Introduction to the Study of Minerals; or
Hatch's Mineralogy; or
Miller's Minerals and How They Occur; with
Williams' Elements of Crystallography.

Book for reference—

Groth's Physikalische Krystallographie.
Dana's Textbook of Mineralogy.
Mier's Mineralogy.

COURSE 4.

CLASS OF PRACTICAL MINERALOGY AND CRYSTALLOGRAPHY.

One hour per week.

Crystal drawing in stereographic projection and in parallel perspective; investigation of various crystal models; study and identification of crystalline and other physical properties of all important minerals.

This course will be taken by students of the Third Year in Arts and Divisions A, C and E of the course in Natural and Physical Science, and by students of the Third Year of the B.Sc. Course.

COURSE 5.

LECTURE-COURSE ON PETROLOGY.

Tuesdays and Fridays, 12 to 1 o'clock.

The principle of the polarising microscope; the optical properties of rock-forming minerals in thin sections; various methods of classifying rocks; the members of the plutonic and hypabyssal families of igneous rocks.

The members of the volcanic family of igneous rocks; sedimentary rocks; metamorphic action and metamorphic rocks; magmatic differentiation; physicochemical laws governing the formation of igneous rocks; the petrology of the Precambrian rocks.

The lectures will be illustrated by rock specimens and projections of rock sections.

This course will be taken by students of the Fourth Year in Arts in Divisions A, C and E of the course in Natural and Physical Science (see pages 65, 66 and 67), and by students of the Fourth Year of the B.Sc. Course.

Text-book—

Harker's Petrology for Students.

Books for reference—

Harker's Natural History of Igneous Rocks.
Rosenbusch's Microscopische Physiographie der Mineralien und Gesteinen.
Teall's British Petrography.

COURSE 6.

CLASS OF PRACTICAL PETROLOGY.

Five hours per week.

Use of polarising microscope; identification of the various rock-forming minerals under the microscope; study and identification of the main types of igneous, sedimentary and metamorphic rocks in thin sections and in hand specimens; preparation of thin rock sections; quantitative estimation of rocks.

This course will be taken by students of the Fourth Year in Arts in Divisions A, C and E of the course in Natural and Physical Science (see pages 65, 66 and 67), and by students of the Fourth Year of the B.Sc. Course.

COURSE 7.

LECTURE-COURSE ON ECONOMIC AND MINING GEOLOGY.

Three hours per week during the first term.

The nature and origin of ore deposits; geological structure of the chief ore-bearing regions in Canada; description of the principal ores of gold, platinum, silver, copper, iron, nickel, cobalt, tin, zinc, lead, manganese, and of other ores of economic interest; natural occurrence, methods of identification and evaluation of the more important ores; coal, building-stone, fertilisers; precious stones; mining processes.

The lectures will be illustrated by a collection of Canadian ores and by lantern projections.

This course will be taken by students of the Third Year of the B.Sc. Course (see page 72).

Text-books—

Miller's Minerals and How They Occur.
Young and Brock's Geology and Economic Minerals of Canada.

Books of reference—

Kemp's Ore Deposits of the United States and Canada.
Geikie's Structural and Field Geology.

COURSE 8.

LECTURE COURSE ON INVERTEBRATE AND VERTEBRATE PALAEONTOLOGY.

Two hours per week during Second Term.

A study mainly of the Invertebrates, and more especially of their hard parts; their classification, distribution and geological range; the fossils of North America, and particularly of Western Canada.

This course will be taken by students in the Fourth Year of Division E of the Natural and Physical Science Course (with a modified Course 5), and by students of the Fourth Year of the B.Sc. Course.

Text-book—

Wood's Palaeontology.

Books for reference—

Zittal's Text-book of Palaeontology (Eastman).
Grabau and Shimer's North American Index Fossils.
Palaeontological Publications of the Geological Survey of Canada.

COURSE 9.

CLASS OF PRACTICAL INVERTEBRATE AND VERTEBRATE PALAEONTOLOGY.

Three hours per week during Second Term.

Preparation of material for study; examination of collections of North American fossils.

This course will be taken by students in the Fourth Year of Division E of the Course in Natural and Physical Science (with a modified Course 6), and by students in the Fourth Year of the B.Sc. Course.

Students taking Geology and Mineralogy in the Natural and Physical Science Course in Arts, who wish to take the Course in Economic and Mining Geology, are advised to do so in their Fourth Year, it being understood that the attendance on this course does not interfere with their work in other departments. The examination will be optional for such students.

In addition to the specified work for the Fifth Year of the B.Sc. Course, students will, under direction, engage in original work on some geological problem. A knowledge of the English, French and German literature on the subject will be required, and satisfactory progress with the work in hand.

It is strongly recommended that students who intend to take Geology as a final subject for the B.Sc. degree should spend at least one summer in field work under the Geological Survey of Canada.

Geological Excursions.

During October and November, excursions will be conducted on Saturdays to points of geological interest in the vicinity. As these excursions form an integral part of the class work, students are expected to attend regularly. The expenses will not exceed $5.00.

It is hoped that it will be found possible to arrange for advanced students a three or four days' excursion to a suitable locality for extended field work on the geology of the district.

Examinations.

The Examinations of Course 1 will be set at the end of each term on the work indicated for the term: separate papers will be set for the Second, Third and Fourth Years. In the case of the remaining lecture courses, an examination will be set at the end of each term on the work of that term, but the right is reserved to the examiner to include in the April Examinations questions on the work of the First Term, if he so desire. All practical examinations are given in April.

DEPARTMENT OF CHEMISTRY

Matthew A. Parker, B.Sc., F.C.S. .... *Professor*
H. P. Armes, B.Sc., Ph.D. .... *Lecturer*
Jon Arnason, B.A. .... *Demonstrator*
—————— .... *Student Assistant*

Course I.

Elementary Inorganic Chemistry.

Professor Parker.

This course is attended by students of the First Year in Medicine, students of the First Year in Engineering, students of the Second Year in Arts (Chemistry Option), students of the Third Year in Arts in the course in Natural and Physical Science (who have not previously taken the course), and students of the Second Year in Science.

The course consists of about seventy-five lectures (three lectures per week), in addition to practical work (see under Chemical Laboratory). The following subjects are treated:—

Physical and chemical change; characteristics of chemical change; indestructibility of matter; elements and compounds; laws of combination by weight; symbols, formulae; equations; units of measurement; oxygen; properties of gases; hydrogen; water; law of combining volumes; Avogadro's hypothesis; Kinetic theory; solutions; chlorine and hydrochloric acid; atomic, equivalent, molecular weights; valency; calculations; atomic theory; halogen elements and compounds; chemical equilibrium; acids, bases, salts; electrolytic dissociations; ions; ozone and hydrogen peroxide; periodic law and classification of elements; the atmosphere; helium, argon; the properties of the following elements and their more important compounds: sulphur, nitrogen, phosphorus, carbon, silicon, boron, sodium, potassium, calcium, strontium, barium, copper, silver, gold, magnesium, zinc, cadmium, mercury, aluminium, tin, lead, arsenic, antimony, bismuth, chromium, manganese, iron, cobalt, nickel, platinum.

A tutorial class (attendance on which is voluntary) is held in connection with this course. The hour of meeting is arranged to suit the convenience of students.

Text-book recommended: For students in Medicine or Engineering or for students in Arts who do not intend to pursue the subject further, Smith's General Chemistry for Colleges. (Century Co.).

For students of the Science Course or those intending to enter the Special Course in Natural and Physical Science for the degree in Arts—Smith's General Inorganic Chemistry (Century Co.), or Holleman's Inorganic Chemistry.

COURSE 2.

GENERAL INORGANIC CHEMISTRY.

Professor Parker.

This short course of about forty lectures is arranged for students of the Third Year in Arts in the course in Natural and Physical Science. It will deal with some of the more general subjects which are barely touched on in the first course.

(NOTE—Students of the Third Year in the Course in Natural and Physical Science who have not attended the first course in Chemistry or its equivalent, will be required to attend the lectures of the first course in addition to those of the second course.)

COURSE 3.

ORGANIC CHEMISTRY.

Professor Parker.

This course is attended by students of the Fourth Year in Arts in the course in Natural and Physical Science, and of the Third Year in the course in Science. It consists of about forty lectures.

The first part of the course deals chiefly with the constitution and chemistry of the chief classes of compounds belonging to the fatty series, viz., saturated and unsaturated hydrocarbons; halogen derivatives of the hydrocarbons; monohydric alcohols; ethers; aldehydes and ketones; monobasic acids and their substitution products; esters; amines; polyhydric alcohols and their oxidation products; carbohydrates; cyanogen compounds, etc.

In the second part of the course the following subjects are considered: Constitutional differences between fatty and aromatic compounds; constitution and chemistry of benzene and its homologues; halogen, nitro-, and amino- derivatives of the hydrocarbons; diazo-, and azo- compounds; sulphonic acids; phenols, quinone; alcohols, aldehydes and ketones; aromatic acids and their derivatives; triphenyl methane and its derivatives; naphthalene, anthracene and their derivatives; pyridine, quinoline, and their derivatives; alkaloids; terpenes.

Text-books recommended: Perkin and Kipping's or Holleman's Organic Chemistry.

COURSE 4.

METALLURGY.

Dr. Armes.

This course of about twenty lectures is arranged for Civil Engineering students of the Third Year. It will deal particularly with the metallurgy of iron and steel. The following subjects will be considered:

The ores of iron; preparation of ores; magnetic concentration; the manufacture and properties of cast iron and wrought iron; the manufacture and properties of steel; the Bessemer and Siemens processes; cementation; crucible steel. The electro-metallurgy of iron and steel; the heat treatment of steel; the metallography of iron and steel; the effects of constituents on iron and steel; alloy steels; the corrosion and preservation of iron and steel.

Text-books recommended: Greenwood and Sexton's "Iron" (Cassell & Co.); Greenwood and Sexton's "Steel" (Cassell & Co.).

COURSE 5.

ELECTRO-CHEMISTRY.

Dr. Armes.

This course of about twenty lectures is arranged for Electrical Engineering students of the Fourth Year. It will deal with the following subjects:

The phenomena and laws of electrolysis; the theory of electrolytic dissociation; the mechanism of conduction of electricity through electrolytes; measurement of conductivity; electromotive force; the phenomena of polarisation; primary cells; storage batteries; the technical applications of electro-chemical methods, the electrolytic separation and refining of metals, electro-thermic metallurgical processes, the manufacture of alkalis and hypochlorites, the products of the electric furnace; the corrosion of metals.

Text-book recommended: M. de Kay Thompson's "Applied Electro-Chemistry" (Macmillan & Co.).

COURSE 6.

ADVANCED GENERAL CHEMISTRY.

Professor Parker and Dr. Armes.

This course of about twenty lectures is arranged for students of the Fourth Year in Arts in the Course in Natural and Physical Science.

The subjects to be studied will be selected with special reference to literature available in the University Library. The following are among those selected: Theory of solutions and application to analysis; stereo-isomerism and optical activity; thermo-chemistry; radio-activity; atomic and molecular weights.

COURSE 7.

ELEMENTARY PHYSICAL CHEMISTRY.

This course of about twenty-five lectures will be provided for students of the Third Year in Science.*

COURSE 8.

ADVANCED PHYSICAL CHEMISTRY.

This course of lectures will be provided for students of the Fourth Year in Science.*

COURSE 9.

ADVANCED ORGANIC CHEMISTRY.

This course of about twenty-five lectures will be provided for students of the Fourth Year in Science.

The subjects to be studied will be chosen with special reference to the literature available in the University Library.

*NOTE.—Full courses in Physical Chemistry cannot be given until a lecturer in that subject is appointed. In the meantime, a modified course will be given which will be supplemented by an additional amount of work in advanced Inorganic and Organic Chemistry.

COURSE 10.

ADVANCED INORGANIC CHEMISTRY.

This course of about twenty-five lectures will be provided for students of the Fourth Year in Science.

The subjects to be studied will be chosen with special reference to the literature available in the University Library.

CHEMICAL LABORATORY.

Professor Parker, Dr. Armes and Mr. Lamont.

Students in Natural and Physical Science of the Third Year are required to attend the Chemical Laboratory six hours a week; students in Natural and Physical Science taking Chemistry in the Fourth Year attend the Laboratory nine hours per week.

Arts students of the Second Year who take the Chemistry option are required to attend the Chemical Laboratory two hours per week.

The laboratory work begun in the Second Year of the Arts course is continued in the Third and Fourth Years of the Natural Science course. It comprises a series of experiments illustrative of chemical theory, including practice in the fitting up of apparatus and the preparation of a number of common inorganic substances; the study of the ualitative methods of detecting and separating mineral substances; quantitative analysis, volumetric and gravimetric; preparation of inorganic and organic substances, etc.

Third Year students in the Course in Natural and Physical Science will use Ramsay's "Experimental Proofs of Chemical Theory for Beginners," and Third and Fourth Year students in the Course in Natural and Physical Science will use Henderson and Parker's "Introduction to Analytical Chemistry" (Blackie & Son). Fourth Year students in this course will also use "Practical Organic Chemistry for Advanced Students," by J. B. Cohen (Macmillan).

Medical students of the First Year are required to attend the Chemical Laboratory four hours per week. The work includes exercises on the preparation and properties of some of the common gases, etc., and a course of qualitative analysis and simple quantitative work.

Engineering students of the First Year attend the Chemical Laboratory three hours per week. This course includes preparation of several inorganic substances, and experiments introductory to qualitative and quantitative analysis.

Engineering students of the Second Year attend the Chemical Laboratory three hours per week. The course includes inorganic quantitative analysis; estimation of carbon, sulphur, phosphorus, etc., in iron and steel; quantitative analysis of cements; water analysis: coal analysis; determination of calorific value, etc. In connection with this course, students are required to attend a special series of about twelve lectures or demonstrations (one hour per week, during the first term).

The Laboratory work for students taking the course for the degree in Science will, in the Second and Third Years, be very similar to that required of students taking the present Natural and Physical Science Course in Arts, but in the Fourth Year of the Science Course, students will spend twelve hours per week in the laboratory, and will have the option of taking courses in Practical Physical Chemistry and *either* Advanced Inorganic Chemistry (chiefly analysis) *or* Advanced Organic Chemistry. For these students the laboratory will be open from 9 o'clock a.m. to 5 p.m. daily (except Saturday).

Special students may be enrolled for the purpose of carrying on such advanced work as the equipment permits of, and special facilities will be given to those capable of carrying on research work.

Each student is supplied with such apparatus as may be required with the exception of platinum wire and foil, laboratory towel, etc., which he must provide for himself.

A deposit of five dollars is paid to the Registrar at the beginning of each session, and all breakages will be made good out of this. See page 270.

A record of all laboratory work must be kept in regulation report books. These are examined periodically during the session, and must be handed to the examiners in chemistry previous to the practical examination for the degree.

Attention is called to the regulation regarding practical work and reports on page 250.

EXAMINATIONS.

Examinations on all lecture courses in Chemistry for Arts and Medical Students, and for Engineering students of the First and Second Years, will be set in December on the work covered in the First Term. The right is reserved to the examiners, however, to include in the April examination questions on the work of the First Term, if they so desire. Practical examinations are set only in April.

DEPARTMENT OF PHYSIOLOGY AND PHYSIOLOGICAL CHEMISTRY.

SWALE VINCENT, M.D., M.R.C.S., L.R.C.P., F.R.SS.E. & C., F.Z.S.	*Professor*
A. T. CAMERON, M.A., B.Sc.	*Assistant Professor*
T. I. BROWNLEE, B.A.	*Student Demonstrator*

The Physiology Department consists of a lecture theatre, a demonstration room for Experimental Physiology, a demonstration room for Physiological Histology, a preparation room for Physiological Chemistry, and students' laboratories for Chemical and Experimental Physiology. The following courses will be given in the Department:—

Physiology

An elementary course of about fifty lectures will be given, commencing in the month of November at the close of the course in Physiological Organic Chemistry. This course must be taken by students of the Second Year in Medicine and by students of the Third Year in Arts in Division D of the course in Natural and Physical Science (see page 66).

An advanced course of about seventy-five lectures will be given during the session. This course must be taken by students of the Third Year in Medicine and by students of the Fourth Year in Arts in Division D of the course in Natural and Physical Science (see page 67).

*For synopsis of the Course in Physiological Organic Chemistry, see page 167.

COURSE 1.—ELEMENTARY LECTURE COURSE.

Professor Vincent.

Mondays, Wednesdays and Thursdays, 2 to 3 p.m.

(NOTE—These lectures will be illustrated as fully as possible by diagrams, models and experiments.)

1. *Structure and Physiology of the Cell, and of the Simple Tissues—*

General Physiology; general physiological methods; graphic records; the cell as an elementary organism; functions of nucleus and protoplasm; the vital phenomena of cells; anabolism, katabolism; manifestations of life; effects of external influences on cells (stimuli and irritability).

2. *General Chemistry of the Animal Body.*

3. *Physiology of Muscle—*

Apparatus for muscle-nerve experiments; contraction of muscle; gross change in form; microscopic change; simple twitch; effects of different conditions; isometric and isotonic contraction; work of muscle; muscle wave; summation of stimuli, tetanus; voluntary contraction; the muscle sound; physical and chemical properties of muscle; chemical and electrical changes in muscle during contraction, etc.

4 *Physiology of Nerve—*

Transmission of the nerve impulse; rate of transmission; effects of varying conditions; conductivity; electrotonus and Pflüger's Law; electrical changes during contraction; negative variation; etc.

5. *Digestion and Absorption—*

The digestive enzymes; the tissues and mechanisms of digestion; properties of saliva, gastric juice, bile, pancreatic juice, and the succus entericus; the foodstuffs and the changes which they undergo in digestion; nervous mechanism of secretion of the digestive juices; chemical mechanism of secretion; absorption by capillaries and by the villi; absorption in the large intestine; muscular mechanisms of digestion, mastication, deglutition, movements of intestine (peristaltic movements); vomiting; defaecation; the lacteals and the lymphatic system, and the part they play in absorption, etc.

6. *The Circulation of the Blood and Lymph*—

General physical and chemical properties of the blood; structure and physical properties of the blood vessels; blood pressure; rate of flow of blood; action of the heart and its valves; the heart sounds; pressure in the heart cavities during a cardiac cycle; the cardiac impulse; cardiograms; the pulse; the cardiac rhythm throughout vertebrates; functions of the cardiac ganglia; innervation of the heart; augmentation, inhibition; the work of the heart; innervation of the blood vessels; vaso-constriction; vaso-dilation; the capillary circulation; inflammation; variations in the quantity of blood and lymph; anaemia; plethora; lymph flow; etc.

7. *Respiration*—

General mechanics of respiration; muscular mechanisms; nervous mechanisms; types of breathing; changes in the air during respiration; circumstances influencing chemical changes; respiratory changes in the blood; oxygen and carbon dioxide in air and blood; spectroscopic study of arterial and venous blood; derivatives of hæmoglobin; respiratory changes in the lungs; respiratory changes in the tissues; apnæa, dyspnæa, asphyxia; eupnæa, hyperpnæa; etc.

8. *Excretion (Kidneys and Skin)*—

Structure and functions of the kidney; secretion of urine, oncometrics; nature of tubular secretion; nature of glomerular secretion; chemistry of the urine, urea, uric acid, etc.; micturition, nervous mechanism; structure and functions of the skin; perspiration; etc.

COURSE 2.—ADVANCED LECTURE COURSE.

Professor Vincent.

Tuesdays and Fridays, 2 to 3 p.m., and Thursdays, 4.30 to 5.30 p.m

(NOTE—These lectures will be illustrated as fully as possible by diagrams, models and experiments.)

1. *Metabolism*—

Fate of food stuffs in the organism; protein metabolism; carbohydrate metabolism; glycosuria, diabetes; starvation; source of muscular energy; animal heat; nutrition and diet; classification of foods; etc.

2. *Internal Secretion and the Ductless Glands*—

General; internal secretion as applied to glands which have also an external secretion; internal secretion of the adrenals; Addison's disease; internal secretion of the thyroids and parathyroids; myxœdema, cretinism, Graves' disease; internal secretion of the pituitary body; acromegaly; functions of thymus, spleen, hæmal glands; etc.

3. *Structure and Functions of the Nervous System*—

General account of the nervous system; nerve cells and nerve fibres; the Neurone theory and modern criticisms; chemistry of nervous tissues; structure of the spinal cord; ascending and descending tracts and their cell connections; functions of the spinal cord, reflex actions; structure and functions of the medulla oblongata; nuclei of cranial nerves; structure and functions of the Pons Varolii and cerebellum; nuclei of the cranial nerves; structure and functions of the mesencephalon; structure and functions of the thalamencephalon; structure and functions of the cerebral hemispheres, the cerebral cortex, motor areas; localisation of functions; attempts to locate higher psychical functions, association areas; the nature of mind; the sympathetic and related system of nerves; the autonomic fibres; preganglionic and postglangionic fibres; action of nicotine; the cranial and sacral autonomic fibres; the enteric nervous system; etc.

4. *Special Senses*—

The structure and functions of the eye, ear and nose; modes of termination of sensory nerves; the skin and tactile sensation; sensations of heat, cold and pain; etc.

5. *Voice and Speech*—

Anatomy and physiology of the larynx; the quality, pitch, and loudness of the human voice; the different voice registers; vowel sounds; etc.

6. *Physiology of Reproduction.*

Note.—Students at the end of their second year in Physiology will be expected to show a competent knowledge of both years' work.

Physiological Organic Chemistry.

Assistant Professor Cameron.

The course in Physiological Organic Chemistry consists of twenty-five lectures, given at the commencement of the session, on Mondays, Wednesdays and Thursdays from 2 to 3 o'clock p.m. The following is an outline of the subjects dealt with; the second half, as far as possible, will be treated from a physiological standpoint.

Hydrocarbons of the fatty and aromatic series, halogen derivatives, alcohols and phenols, ethers, aldehydes and ketones, fatty acids, esters, etc.

Glycerol and the fats, carbohydrates, glucosides, cyanogen compounds, urea and its derivatives, uric acid and allied substances, benzene and its derivatives, aromatic nitrogen compounds, alkaloids, proteins, etc.

Practical Physiology.

Students of the Second and Third Years in Medicine and students of the Third and Fourth Years in Arts, taking Division D of the course in Natural and Physical Science, are required to attend practical classes in Experimental Physiology and in Physiological Chemistry.

The Elementary Practical Class (for students of the Second Year in Medicine and the Third Year in Arts) will meet during the session on Mondays and Wednesdays, from 3 to 5 o'clock p.m.; the Advanced Practical Class (for students of the Third Year in Medicine and the Fourth Year in Arts), on Tuesdays and Fridays, from 3 to 5 o'clock p.m. Particular importance will be attached to punctuality and regularity in attendance at these practical classes.

EXPERIMENTAL PHYSIOLOGY.

Professor Vincent and Assistant Professor Cameron.

Elementary Course.

Simple experiments in muscle-nerve physiology, graphic records, effects of varying conditions on muscular contractions, transmission of nerve-impulse, electro-tonus, Pflüger's

Law, the beat of the heart and its nervous control, perfusion through blood-vessels, reflex action, etc.

Advanced Course.

Some of the more difficult experiments of the elementary course repeated and studied in greater detail, electro-physiology (galvanometry), blood-pressure, ophthalmoscope, laryngoscope, experiments upon the special senses, physiological psychology, etc.

PHYSIOLOGICAL CHEMISTRY.

Professor Vincent and Assistant Professor Cameron.

Elementary Course.

Isolation and preparation of pure organic compounds; detection of elements, hydrocarbons, halogen derivatives of hydrocarbons, alcohols, esters, ethers, aldehydes and ketones, organic acids, fats; detection and estimation of carbohydrates; action of enzymes; cyanogen compounds, amines, amino-acids, amides, purines, guanidine acids, aromatic compounds, etc.

Advanced Course.

Detection and estimation of carbohydrates, fats, proteins, protein derivatives; food constituents; study of digestive processes; blood; normal and pathological urine with the quantitative estimation of its constituents.

Physiological Histology.

Professor Vincent and Assistant Professor Cameron.

Students of the Third and Fourth Years in Arts taking Division D of the course in Natural and Physical Science are required to attend a course in Physiological Histology. This will consist of one lecture and one period of two hours practical work per week throughout the session (times to be arranged).

Metabolism.

Assistant Professor Cameron.

This course will be given from January to March, 1913 (and in alternate years following), one hour per week, at a time to be arranged. It is compulsory for students of the Fourth Year in Arts, who take Physiology, and optional for Medical students of the Third and subsequent years. Medical practitioners and others not taking the regular courses may be allowed to attend on making application through the Registrar. The following is an outline of the subjects dealt with:—

(1) *Normal Metabolism*—The foodstuffs and their fate in the organism; metabolism of proteins, fats, carbohydrates, alcohol, water, salts, total metabolism; metabolism and muscular energy; diet; the influence of certain organisms on metabolism; etc.

(2) *Pathological Metabolism*—

(a) Metabolism in diseases; hunger and inanition; fever.

(b) Diseases of metabolism; diabetes, obesity, gout, etc.

Physical Chemistry.

(As Applied to Physiology and Medicine)

Assistant Professor Cameron.

This course will alternate with the previous one, and will be next given from January to March, 1914. The following is an outline of the subjects dealt with:—

The fundamental laws of physical chemistry; gaseous diffusion and respiration; osmotic pressure; vapour pressure, elevation of boiling point, depression of freezing point, and molecular weight; electrolytic dissociation; physical chemical properties of blood; application of physical chemical methods to the pathological physiology of the circulation, and of excretion; digestion, absorption, secretion, excretion; physical chemistry of colloids, etc.

PHYSIOLOGICAL RESEARCH PRIZE.

A sum of money has been raised among medical men and others interested in Physiology. This will be devoted to providing a prize annually or biennally for original investigation carried out in the Physiology Department. Further details will be published later.

TEXT-BOOKS.

For Physiology—

Schäfer, Text-book of Physiology, 2 vols. (Young J. Pentland, Edinburgh and London.)

Howell, An American Text-book of Physiology, 2 vols. (W. B. Saunders, Philadelphia.)

Stewart, Manual of Physiology. (W. B. Saunders, Philadelphia.)

Howell, A Text-book of Physiology. (W. B. Saunders, Philadelphia and London.)

Starling, Elements of Human Physiology. (J. and A. Churchill, London.)

Students are also recommended to consult the following:—
Hutchison, Applied Physiology. (Arnold, London.)

Monographs in Biochemistry. (Longmans, London and New York.)

Vincent, Internal Secretion and the Ductless Glands. (Arnold, London.)

For Physiological Organic Chemistry—

Haskins, Organic Chemistry for Medical Students, 2nd edition. (Wiley, New York.)

For Practical Physiological Chemistry—

R. H. Aders Plimmer, Practical Physiological Chemistry (Longmans, London and New York).

For Experimental Physiology—

Schäfer, Experimental Physiology, 1913 Edition. (Longmans, London and New York.)

Alcock and Ellison, Practical Physiology. (Longmans, London and New York.)

For Physiological Histology--

Schäfer, Essentials of Histology. (Longmans, London and New York)

The examination requirements for Third and Fourth Years of the Arts course will be similar to those for the Second and Third Years of Medicine respectively, except in so far that Arts students may be required to pass an examination in practical histology.

A deposit of five dollars is paid to the Registrar at the beginning of each session, and all breakages will be made good from this. See page 270.

The Physiology laboratories are open daily from 9 a.m. to 11 p.m. for the prosecution of original research. Application is to be made to the Professor.

EXAMINATIONS.

Students in Arts will be examined in December on the work covered in their lecture courses during the First Term, and in April on the work covered in the Second Term. The right is reserved, however, to the examiners, to include in the April examination questions on the work of the First Term. Medical students will be examined only in April, and practical examinations on laboratory courses will be given only in April.

DEPARTMENT OF ZOOLOGY

C. J. TRIGGERSON, M.A., Ph.D. ....*Assistant Professor*

COURSE 1.

Lecture Course on General Zoology.

This course is designed for students of the Second Year in Arts, electing Biology as an option. It affords an introduction to the general principles of animal biology, morphology and physiology. A detailed study of a series of living forms will be made the basis for brief discussions on essential principles. Two lectures a week will be given throughout the year, hours to be arranged. The following subjects are treated:

PART I.—FIRST TERM.

Elementary Animal Biology and Invertebrate Zoology.

The general features of the animal kingdom; protoplasm—the physical basis of life; the nature and structure of the cell; differences between plants and animals; unicellular organisms—Amœba, Euglena, Paramœcium, Volvox, etc.

A comparative study of a series of types in ascending order illustrating the outlines of Invertebrate Zoology: The structure, life history and physiology of Hydra, Planaria, Asteria, Lumbricus, one of the Acridiidae, etc.; brief discussions of methods of reproduction and life cycle.

Part II.—Second Term.

Elementary Vertebrate Zoology.

A study of a series of types in ascending order illustrating the classification and morphology of the Chordata; the general structure and life history of a Teleost, Rana, Columba, and Lepus; a consideration of the tissues, organs and their functions; brief discussions of the main problems of heredity, evolution, adjustment of organism to environment; sketches of the pioneers in Zoology

Text-book—
  Thompson, Outlines of Zoology.
  Parker: Biology.
Books of reference—
  Needham: General Biology.
  Parker and Haswell: Text-book of Zoology, 2 vols.

Course 2.

A Lecture Course on General Zoology and Comparative Anatomy.

This course is arranged for students of the First Year in Medicine. It includes a detailed study of the morphology, anatomy, and physiology of a series of living forms. Two lectures will be given each week throughout the session—Monday, 3 p.m., and Thursday, 2 p.m.

The topics for discussion will include the following:—

Part I.—First Term.

General introduction; the distinctive properties of protoplasm; the structure of the cell; its modification for special purposes and methods of division; oogenesis and spermatogenesis; the anatomy of Lepus, etc.

A comparative study of a series of types illustrating the outlines of Invertebrate Zoology up to the Annulata; brief discussions of the more important parasitic protozoa and vermes.

PART II.—SECOND TERM.

Further consideration of Invertebrate forms; a study of a series of types illustrating the principal classes of the Chordata. A comparative study of the integument, skeleton, muscular system, visceral, respiratory, and nervous systems, organs of special sense, urinogenital system, etc., of Amphioxus, a Teleost, Rana, a Reptile, Columbia, etc. The elementary physiology of the foregoing species; the nature of the blood; simple structure of nerve and muscle.

Text-book—

Parker and Haswell: Text-book of Zoology, 2 vols.

Books of reference—

Widersheim: Comparative Anatomy of Vertebrates.
Kingsley: Vertebrate Zoology.
Reynolds: Vertebrate Skeleton.

COURSE 3.

Laboratory Course in Comparative Anatomy.

This course is designed for students of the First Year in Medicine, to be taken in conjunction with Course 2.

It will include practice in the use and care of the microscope: the micro- and macroscopic study of Amoeba, Paramoecium Vorticella, Obelia, Taenie solium, Ascaris lumbricoides, Hirudo medicinalis, an Insecta, with particular attention to parasitic forms. An anatomical and comparative study of a series of selected vertebrate types.

Laboratory hours—Thursday, 3—5.30 p.m.; Saturday, 9—12.30 a.m.

Text-book—

Marshall & Hurst: Practical Zoology.

COURSE 4.

Advanced Lecture Course in Zoology.

This course is arranged for students of the Third Year of Arts in Divisions C, D and E of the Course in Natural and Physical Science, and will continue the work of Course 1. It is designed to give a broad, general acquaintance with the principles of Zoology. It will include the anatomy, embryology and etiology of representative forms. Problems of natural environment, terrestrial and marine faunal areas and principles of distribution will be discussed. The lectures will touch on the principles of nomenclature, and the characters and relationships of the groups, and will give an opportunity for a more critical and extended treatment of the main problems outlined in Course 1.

There will be two lectures each week throughout the session, hours to be arranged.

PART I.—FIRST TERM.

Invertebrate Zoology.

The morphology, classification and distribution of invertebrates; a detailed study of a series of types illustrating the various phyla.

PART II.—SECOND TERM.

The morphology, classification and distribution of the vertebrates; a systematic and comparative study of a series of selected types arranged in ascending order. The several systems of organs will be considered with reference to their structure development and evolution in time.

Text-books—
  Parker and Haswell: Text-book of Zoology, 2 vols.

Books of reference—
  Hertwig: Zoology (trans. by Kingsley).
  Kingsley: Vertebrate Zoology.
  Wiedersheim: Comparative Anatomy.
  Baker: Anatomical Terminology.
  Gadow: Classification of Vertebrates.

COURSE 5.

Advanced Laboratory Course in Zoology.

This course, which is taken by students of the Third Year in Arts in Divisions C, D and E of the Course in Natural and Physical Science, is illustrative of the foregoing course. It will include the macro- and microscopic anatomy of Amoeba, Euglena, Vorticella, Grantia, Obelia, Planaria, Ascaris, Asteria, Lumbricus, Astacus, a Mussel, etc.; a detailed study of the skeleton, integument, muscular, visceral, nervous, and vascular systems, etc., of Balanoglossus, an Ascidian, Amphioxus, a Teleost, Rana, a Reptile, Columba, Lepus or Felis.

Text-book—
Outlines in Invertebrate Zoology.
Parker: Zootomy.

COURSE 6.

Lecture Course in Vertebrate Embryology.

This course will be taken by students of the Fourth Year in Arts in Divisions C, D and E of the Course in Natural and Physical Science. It is designed to give a presentation of the facts and factors in the development of animals, and will include a detailed study of the egg—maturation, fertilization, segmentation, etc; the origin and development of the various organs as illustrated in the fish, frog and chick. Two lectures each week throughout the session.

The mid-year examination in this course will include only the work covered during the first term.

Text-books—
Reese: An Introduction to Vertebrate Embryology.
Lillie: Development of the Chick.
Marshall: Vertebrate Embryology.

COURSE 7.

Laboratory Course in Vertebrate Embryology.

This course will be taken by students of the Fourth Year in Arts in Divisions C, D and E, of the Course in Natural and Physical Science, and will illustraet the foregoing course. Instruction will be given in laboratory technique, and a careful study will be made of the various stages in the development of the fish, frog and chick. Two practical periods each week throughout the session, hours to be arranged.

Text-books—Similar to those in Course 6.

Students entering the Fourth Year will be required to submit a collection of animals from a specified group as an evidence of field proficiency.

EXAMINATIONS.

Students will be examined in December and in April on the work covered in the lectures of the preceding term as indicated. The right is reserved to the examiners, however, to include in the April examination questions on the work of the First Term, if they so desire. Practical examinations are given only in April.

Extension Courses

I. ENGLISH LITERATURE.

A course of some twenty-five lectures in English Literature is given by Professor A. W. Crawford on Saturday mornings, at 10 o'clock, and on Tuesday evenings at 8:15 o'clock, throughout the session. The Tuesday evening lecture is a repetition of that given on the preceding Saturday morning. It is intended especially for teachers and students, but is open to all others who are qualified to do the work. It consists of exposition, interpretative readings, and discussions of the methods of teaching literature. Each year one or more great authors is studied, and the courses are so arranged in rotation that they will furnish a comprehensive acquaintance with the best English literature to those who follow them for a number of years. The following indicates the range of work:

1909-1910—SHAKESPEARE.

1910-1911—TENNYSON.
BROWNING.

1911-1912—CHAUCER.
SPENSER.
MILTON.

1912-1913—CHRISTOPHER MARLOWE.
BEN JONSON.
WILLIAM SHAKESPEARE.

1913-1914—WORDSWORTH.
COLERIDGE.
KEATS.
SHELLEY.

1. WORDSWORTH and COLERIDGE—

   (*a*) WILLIAM WORDSWORTH:
   We Are Seven; Simon Lee, the Old Huntsman; The Old Cumberland Beggar; Lines Composed a Few

Miles Above Tintern Abbey; Three Years She Grew; Lucy Gray; Ruth; Influence of Natural Objects; Nutting; Hart-Leap Well; The Pet-Lamb; Michael; To the Cuckoo; My Heart Leaps Up; Resolution and Independence; To the Daisy (In youth from rock to rock); The Green Linnet; At the Grave of Burns; To a Highland Girl; The Solitary Reaper; Yarrow Unvisited; She Was a Phantom of Delight; I Wandered Lonely as a Cloud; Ode to Duty; Ode on Intimations of Immortality; Yarrow Visited; To a Sky-Lark (Ethereal Minstrel); Yarrow Revisited; On the Extinction of the Venetian Republic; London, 1802 (Milton); Composed upon Westminster Bridge; It Is a Beauteous Evening; The World Is Too Much With Us; A Poet!—He Hath Put His Heart to School.

(These poems are contained in *Poems by Wordsworth,* edited by Professor Edward Dowden, and published by Ginn & Co., Boston).

(*b*) SAMUEL TAYLOR COLERIDGE:

Fears in Solitude; Lime Tree Bower My Prison; Dejection, an Ode; France, an Ode; Hymn Before Sunrise, in the Vale of Chamouni; Ode to Tranquility; The Ancient Mariner; Christabel; Kubla Khan; Youth and Age; Love; Alice du Clos; The Pains of Sleep.

(These poems are contained in *The Golden Book of Coleridge,* edited by Stopford A. Brooke, and published in "Everyman's Library," by Dent & Co.)

2. SHELLEY and KEATS—

(*a*) PERCY BYSSHE SHELLEY:

Alastor; Hymn to Intellectual Beauty; Lines Written Among the Euganean Hills; Ode to the West Wind; The Sensitive Plant; The Cloud; To a Skylark; Ode to Liberty; Letter to Maria Gisborne; Ode to Naples; Adonais.

(These poems are contained in *Select Poems of Shelley,* edited by Professor W. J. Alexander, and published by Ginn & Co., Boston.)

(*b*) John Keats:
Ode to a Nightingale; Ode on a Grecian Urn; Ode on Melancholy; Sleep and Poetry; La Belle Dame sans Merci; On First Looking into Chapman's Homer; Written on the Day that Mr. Leigh Hunt Left Prison; On the Grasshopper and the Cricket; Lamia; Isabella, or the Pot of Basil; The Eve of St. Agnes.

(These poems are contained in *Poems by John Keats,* edited by Professor Arlo Bates, and published by Ginn & Co., Boston.)

An examination is provided on the course each year at the time of the undergraduate examinations in Arts. Two examination papers are set. The taking of the examination is optional.

(Note.—The Department of Education accepts from women students, holding Second-class Teachers' Certificates, a satisfactory examination on the work of any year of the above course, in lieu of the Mathematics ordinarily prescribed for the First-class Teachers' Non-Professional Examination. In such cases candidates are given papers, reviewing the Mathematics prescribed for the Second-class Teachers' Non-Professional Examination.)

II.—POLITICAL ECONOMY.

An evening course of some twenty lectures on Political Economy will be given by Mr. T. H. Fraser, M.A., LL.B., on a day and at an hour to be announced. It is especially designed to meet the needs of teachers, bankers, lawyers, and others engaged in business in the city.

The lectures will include a discussion of the leading principles of Political Economy and their application to present day problems of industry and commerce, as in the following synopsis:—

1. Introductory.—Character and Scope of Political Economy; Wealth; Economic Laws; Relation of Economic Science to Practice.

2. Production.—Its Essence; Its Relation to Consumption:

Law of Diminishing Utility; Agents of Production—Nature, Labor, Capital; causes Determining the Productiveness of Industry; Laws of Diminishing and Increasing Return; Growth of Material Capital.

3. DISTRIBUTION.—Private Property; Property in Land; Socialism; Wages, Interest, Profit, Rent; Influence of Trade Unions on Wages.

4. EXCHANGE.—Theory of Value, Demand and Supply, Market and Normal Value, Relation of Rent to Value, Monopoly Value; Money—Its Functions, Standard and Token Money, Mint Price and Market Price of Gold, Gresham's Law; Money and Prices—The Quantity Theory; Inconvertible Paper Currency; Credit—Its Forms and Its Basis; Banking—Its Historical Development, Regulation of Bank Note Issues. Deposit Banking, The Money Market, The Reserve, The Rate of Discount, The Foreign Exchanges, Commercial Crises; Theory of International Trade and International Values; Free Trade and Protection.

5. THE ECONOMIC FUNCTIONS OF GOVERNMENT.—Grounds and Limits of *Laisser Faire*; Public Finance—Taxation and Expenditure.

The lectures will form in themselves a course independent of any text-book; but Nicholson's "Elements of Political Economy" will be found useful for supplementary reading. References to this work and others in special departments of Economics, will be given from time to time throughout the course.

Curricula in Engineering

Curricula in Engineering

The University of Manitoba confers six degrees in Engineering, viz., Bachelor of Civil Engineering (B.C.E.), Master of Civil Engineering (M.C.E.), Bachelor of Electrical Engineering (B.E.E.), Master of Electrical Engineering (M.E.E.), Bachelor of Architecture, and Bachelor of Mechanical Engineering. The following are the requisites for proceeding in course to admission to these degrees:

I. Bachelor of Civil Engineering.

MATRICULATION.

Students may be admitted to the Engineering Courses as:

(1) Undergraduates.

(2) Conditioned Students.

(3) Partial Students.

Undergraduate Students are those who are taking the full course leading to a degree and who have satisfied the requirements for matriculation.

The requirements for matriculation for Engineering are set forth on pages 43 to 46.

NOTE 1—Students holding the standing of Arts Matriculation must pass the examinations of Part III. Matriculation for Engineering before completing the Entrance requirements for a course in Engineering.

NOTE 2—Students who have completed the First Year of the undergraduate course in Arts may enter upon the course in Engineering without further examination. They will be exempted only from the subject of English of the First Year in Engineering.

Conditioned Students are subject to the same rules as govern conditioned students in Arts. See page 248.

Partial Students are those who do not belong to either of the above classes, but who, with the approval of the Professor concerned, are taking one or more of the special subjects of the Engineering courses, such students being allowed to attend any class without previous examination, provided they satisfy the Professor of their ability to proceed with the class.

Only fully matriculated or undergraduate students and conditioned students who have met the requirements of the University regarding the removal of their conditions before the commencement of the Second Year, may proceed with the course for a degree.

UNDERGRADUATE COURSE IN CIVIL ENGINEERING.

General Plan of Course.

After having matriculated, the student of Civil Engineering is required to obtain credit for attendance at lectures and for laboratory, field and office work, as outlined below, and to pass four examinations, before being admitted to the degree of Bachelor of Civil Engineering, viz., the First, the Second, the Third and the Fourth Year examinations.

Object of the Course.

The course in Civil Engineering is designed to give a broad education in those general and scientific subjects which are the foundation of all branches of engineering and a special training in those subjects especially related to Civil Engineering, enabling the student to take a position in any of the speci branches, such as:—

(1) Railroad Engineering.
(2) Land Surveying.*
(3) Railway and Geodetic Surveying.
(4) Hydraulic Engineering (including the development of hydraulic power, etc.).
(5) Land Irrigation.
(6) Municipal Engineering (including design and construction of roads and pavements, water supply systems, sewerage systems).
(7) Sanitary Engineering.
(8) Bridge and Structural Engineering.

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*The course has been specially arranged so that students who intend to take out licenses as Land Surveyors may select subjects from the Civil Engineering course which bear directly upon the examination for Land Surveyors.

As the Civil Engineer frequently has to deal with problems involving electrical and mechanical work, the course also provides instruction in the principles of Steam and Mechanical Engineering, as well as in the principles of Electrical Engineering.

With this groundwork the student has a wide field from which to choose his life work, and the course especially fits him for the management and direction of business and engineering enterprises after he has received the necessary practical experience.

Method of Instruction.

Instruction is given by lectures, recitations and classroom work, together with actual practice in field and laboratory and in drawing work.

Examinations.

In order to pass in any examination of the Civil Engineering Course (beyond Matriculation), candidates are required to make a standing of 50 per cent. on each subject. The practical work in the field, laboratory, drafting room and classroom during the session is counted.

OUTLINE OF COURSE.

First Year.

1. Analytical Geometry. (Course 1, page 136.)
2. Algebra. (Course 2, page 136.)
3. Solid Geometry and Mensuration. (Course 3, page 136, and Course 4, page 136.)
4. Plane and Spherical Trigonometry. (Courses 5 and 6, pages 136 and 137.)

5. Chemistry—
    - (a) Lecture Course. (Course 1, page 157.)
    - (b) Laboratory Work. (See page 161.)
6. Physics—Mechanics, Heat and Sound—
    - (a) Lecture Course. (Course 4, page 144.)
    - (b) Laboratory Course. (Course 6, page 145.)
7. Descriptive Geometry I. (Course 2, page 192.)
8. Drawing I. (Course 5, page 193.)
9. Surveying I. (Course 19, page 198.)
10. English. (Course 1, page 209.)

Second Year.

1. Differential and Integral Calculus. (Course 7, page 137.)
2. Physics—Light, Magnetism and Electricity—
    - (a) Lecture Course. (Course 5, page 145.)
    - (b) Laboratory Work. (Course 7, page 145.)
3. Chemistry—Quantitative Analysis.
    Laboratory Course. (See page 161.)
4. Descriptive Geometry II. (Course 3, page 193.)
5. Drawing II. (Course 6, page 194.)
6. Surveying II. (Course 20, page 199.)
7. Materials of Engineering. (Course 10, page 195.)
8. Kinematics of Machines. (Course 1, page 207.)
9. Mechanics of Machinery. (Course 2, page 207.)

Third Year.

1. Railway Surveying and Construction. (Course 13, page 196.)

2. Retaining Walls. (Course 15, page 197.)
3. Hydraulics. (Course 9, page 195.)
4. Strength of Materials. (Course 18, page 198.)
5. Graphical Statics. (Course 8, page 195.)
6. Cement Testing. (Course 1, page 192.)
7. Material Testing. (Course 11, page 196.)
8. General Geology—
    (a) Lecture Course. (Course 1, page 150.)
    (b) Class in Practical Geology. (Course 2, page 151.)
9. Economic and Mining Geology. (Course 7, page 154.)
10. Mechanical Engineering. (Course 3, page 208.)
11. Metallurgy. (Course 4, page 159.)
12. Practical Astronomy. (Course 8, page 137.)

Fourth Year.

1. Roof, Truss and Bridge Design. (Course 16, page 197.)
2. Water Supply and Irrigation. (Course 22, page 200.)
3. Sewerage and Sewage Purification. (Course 17, page 198.)
4. Railway Economics. (Course 12, page 196.)
5. Reinforced Concrete Construction. (Course 14, page 197.)
6. Water Power Development. (Course 21, page 199.)
7. Geodesy. (Course 7, page 194.)
8. Elements of Electrical Engineering. (Course 9, page 205.)

SUMMER THESES.

Students of the First, Second and Third Years are required to prepare during the summer following each of these years a thesis describing in detail some piece of engineering work or structure, or describing any work with which they have been connected during the vacation.

These theses must be submitted to the Secretary of the Standing Committee on Engineering on or before November 1st.

GRADUATION THESES.

Every student of the Fourth Year is required to prepare a design, with adequate drawings, of some engineering work or enterprise, or to complete an original research on some material of construction.

The subjects of these theses are to be submitted for approval to the Professor of Civil Engineering not later than January 15th, and the completed reports must be handed in on or before April 15th of the final year.

II.—Master of Civil Engineering.

Candidates for the degree of Master of Civil Engineering (M.C.E.) must have been admitted to the degree of Bachelor of Civil Engineering at least two years previously, must have spent the interval in the active practice of the profession, and must present theses (with plans), satisfactory to the examiners, upon some engineering work with which they have been connected.

III.—Bachelor of Electrical Engineering.

MATRICULATION.

The requirements for matriculation for Engineering are set forth in detail in the Matriculation Calendar.

UNDERGRADUATE COURSE IN ELECTRICAL ENGINEERING.

General Plan of Course.

After having matriculated, the student of Electrical Engineering is required to obtain credit for attendance at lectures and for field, office and laboratory work, as outlined below, and to pass four examinations, before being admitted to the degree of Bachelor of Electrical Engineering, viz., the First, the Second, the Third and the Fourth Year examinations.

Object of the Course.

The course in Electrical Engineering is intended to give a student, first, a preliminary training in the various sciences such as Physics, Chemistry and Mathematics, which must form the basis of any engineering education; secondly, instruction in the general engineering subjects, such as Surveying, Mechanical Drawing, Strength of Materials, and Hydraulics; and thirdly, an intimate knowledge of the subjects required to qualify a man for the special work of an Electrical Engineer, namely, the flow of continuous and alternating currents, the design and operation of continuous and alternating current machinery, electric railways, electric lighting and power distribution, mechanical engineering, hydraulic machinery and machine design.

In general, the course is intended to give a student a working knowledge of the principles of Civil and Mechanical Engineering, and a more specialized training in Electrical Engineering, which, when combined with experience in practical work, will qualify him to perform the duties of an engineer in charge of the design, operation or management of electrical plants, railways or other industries.

Method of Instruction.

Instruction is given by lectures, recitations and classroom work, and by actual practice in field, drafting room and laboratory.

Examinations.

In order to pass in any examination of the Electrical Engineering Course (beyond Matriculation), candidates are required to make a standing of 50 per cent. on each subject. The practical work in the field, drafting-room, classroom and laboratories during the session is counted.

OUTLINE OF COURSE.

First Year.

The First Year course is the same as that required of students of the First Year in Civil Engineering. See page 184.

Second Year.

The Second Year course is the same as that required of students of the Second Year in Civil Engineering. See page 185.

Third Year.

1. Continuous Currents and Continuous Current Machinery. (Course 1, page 202.)
2. Continuous Current Laboratory Course. (Course 7, page 204.)
3. Machine Design I. (Course 4, page 208.)
4. Mechanical Engineering I. (Course 3, page 208.)
5. Mechanical Drawing. (Course 5, page 208.)
6. Physics. (Course 8, page 146.)
7. Strength of Materials. (Course 18, page 198.)
8. Graphical Statics. (Course 8, page 195.)
9. Hydraulics. (Course 9, page 195.)
10. Material Testing (Laboratory Course). (Course 11, page 196.)
11. Mathematics—Differential Equations. (Course 9, page 138.)

VISITS TO ELECTRICAL PLANTS.

A series of visits to electrical power plants and industries where electricity is used, will be made under the guidance of the professor of Electrical Engineering, in order that the student may become familiar with the methods of using electricity in actual commercial practice.

SUMMER THESIS.

In the summer holidays each student will be required to prepare a complete set of drawings of some electrical power plant, or to write a thesis on an electrical or other engineering subject.

SUMMER WORK.

Students are strongly recommended to spend their holidays at electrical or mechanical engineering work of some kind, and the value of such work will be recognized in the final estimate of the student's qualifications for the degree.

Fourth Year.

1. Alternating Currents and Alternating Current Machinery. (Course 2, page 202.)
2. Alternating Current Laboratory Course. (Course 8, page 204.)
3. Designing. (Course 3, page 203.)
4. Electric Lighting and Power Distribution. (Course 4, page 203.)
5. Electric Traction. (Course 5, page 203.)
6. High Tension Transmission. (Course 6, page 204.)
7. Machine Design II. (Course 7, page 208.)
8. Mechanical Engineering II. (Course 6, page 208.)
9. Electro-Chemistry. (Course 5, page 159.)
10. Power Development. (Course 21, page 199.)
11. Thesis.

During the latter part of the second term the time allowed for laboratory work will be devoted to some original investigation, the results of which will be presented as a thesis at the end of the session.

IV. Master of Electrical Engineering.

Candidates for the degree of Master of Electrical Engineering (M.E.E.) must have been admitted to the degree of Bachelor of Electrical Engineering at last two years previously, must have spent the interval in the active practice of the profession, and must present theses (with plans), satisfactory to the examiners, upon some engineering work with which they have been connected.

University Departments of Instruction in Engineering

University Departments of Instruction in Engineering

DEPARTMENT OF CIVIL ENGINEERING

Ernest E. Brydone-Jack, B.A., C.E. (Renss.), M. Can. Soc. C.E., M. Am. Soc. C.E., M. Am. Soc. Prom. Eng. Ed. ....*Professor of Civil Engineering*
Leslie I. Johnstone, B.S. ....*Assistant Professor of Surveying and Geodesy*
Ellis E. Bankson, B.S...*Lecturer in Materials and Hydraulics*
R. W. Moffatt, B.A.Sc. .... *Lecturer in Graphics, Masonry Construction and Drawing*
A. H. O'Reilly, B.C.E. .... *Demonstrator*

Course 1.

Cement Testing.

Mr. Bankson and Mr. O'Reilly.

Preparation of specimens for testing; determination of fineness; specific gravity, tensile strength, normal consistency, time of setting, soundness, compressive transverse and torsional strength; effect of temperature.

Laboratory work, three hours per week (First term).

Opportunity is given for research or advanced work.

Course 2.

Descriptive Geometry, I.

Mr. Moffatt.

This is a course in Elementary Descriptive Geometry, which, starting with no knowledge on the student's part of solid geometry, covers the following:

Elementary solid geometry as related to descriptive; elementary principles of orthographic projections; the application of these principles to simple problems on straight line and plane; isometric projections; axonometric projections; oblique projections.

Lectures, two hours per week, both terms.

COURSE 3.

DESCRIPTIVE GEOMETRY, II.

Mr. Moffatt.

This course is a continuation of Course 2 above, and covers the following:

Generation and classification of lines and surfaces; projections of the conic sections; projections of solids bounded by curved surfaces; tangencies, linear and surface; intersections of lines and surfaces of all classes; developments of surfaces; shades and shadows; perspective; application of the principles of descriptive geometry to elementary skewed steel connections.

Lectures, two hours per week, both terms.

COURSE 4.

DESCRIPTIVE GEOMETRY, III.

Mr. Moffatt.

This course of lectures, designed especially for students in Civil Engineering, covers the various methods of making spherical projections, the application of these principles to map construction, and the graphical solution of the spherical triangle.

Lectures, one hour a week, one term only.

COURSE 5.

DRAWING, I.

Mr. Moffatt.

Testing and use of drawing instruments; lettering; problems n descriptive geometry and examples of orthographs (including isometric) and oblique projections; methods of making freehand sketches and dimensioned construction notes of simple pieces of apparatus; measurement and complete drawings of simple pieces of iron and steel apparatus; tracing and blueprinting.

Lectures and class-work, six hours a week, both terms.

Note.—It is to be carefully borne in mind in regard to the above that, while six hours per week indicates the time during which instruction is given, the required amount of work is such that a large amount of extra time will have to be spent in the draughting rooms, the exact amount of which depends upon the capability of the student.

COURSE 6.

DRAWING, II.

Mr. Moffatt.

This course is given by lectures and class work, and covers the following:

Shading with ink and color; elementary principles of water colors as applied in engineering drawing; measurement and complete drawings of steel and iron apparatus of a more advanced character than that of Course 5; problems in descriptive geometry, including projections of certain curved surfaces, tangencies, intersections and developments of surfaces, shades and shadows, perspective; methods of making freehand, dimensioned construction notes of machine parts, steel work, etc.

Lectures and class work, six hours a week, both terms.

Note.—It is to be carefully borne in mind in regard to the above that, while six hours per week indicates the time during which instruction is given, the required amount of work is such that a large amount of extra time will have to be spent in the draughting rooms, the exact amount of which depends on the capability of the student.

COURSE 7.

GEODESY.

Assistant Professor Johnstone.

Purposes of a geodetic survey; principles of triangulation; base-line measurement; measurement of angles; triangular adjustments and computations; computations of geodetic positions; geodetic leveling; astronomical determinations; map projection; adjustment of observations by method of least squares.

Lectures, two hours per week.

Course 8.

Graphical Statics.

Mr. Moffatt.

Forces, concurrent and non-concurrent; principles and uses of the force and funicular (equilibrium) polygons in the determination of moments, centres of gravity and moments of inertia; use of the funicular polygon and influence lines in the investigation of reactions, shears and moments of beams and elementary framed structures.

Lectures, two hours per week, both terms, for both Civil and Electrical Engineering students.

Class work, one hour a week, both terms, for Civil Engineering students only.

Course 9

Hydraulics.

Mr. Bankson.

Pressure of water on plane and curved surfaces; centre of pressure; Bernoulli's Theorem; investigation of flow through orifices, mouthpieces, weirs, channels and pipes; water meters; dynamic action of jets and streams; water-wheels and turbines.

Lectures, two hours per week.

Course 10.

Materials of Engineering.

Mr. Bankson.

First Term: Characteristics and uses of cement, concrete, brick, stone, wood; methods of proportioning concrete; methods of manufacture of Portland cement and building brick; brickwork and masonry construction.

Lectures, two hours per week.

Second Term: Description of the different kinds of iron and steel, with special reference to their physical properties; strength of materials; stress and strain; modulus of elasticity; strength of beams.

Lectures, two hours per week.

COURSE 11.

MATERIAL TESTING.

Mr. Bankson and Mr. O'Reilly.

Tensile, compressive and transverse tests of iron, steel, timber, brick and stone; calculation of stresses, elongation, reduction of area, modulus of elasticity, modulus of rupture, and modulus of resilience; use of instruments for measuring small strains.

Laboratory work, three hours per week (Second term).

COURSE 12.

RAILWAY ECONOMICS.

Assistant Professor Johnstone.

Organization and financing of railway companies; effect of grade, curvature and distance on the operating expenses; relation of operating expenses to gross revenue and fixed charges; relation of probable traffic to population; costs of betterment of existing lines in relation to saving in operating expenses and increase in gross revenue.

Lectures, two hours per week (First term).

COURSE 13.

RAILWAY LOCATION AND CONSTRUCTION.

Assistant Professor Johnstone.

Preliminary and location surveys for railroads; geometry of simple and compound curves; turnouts; Y tracks and crossings; the railroad spiral; earthwork; the mass diagram.

Lectures, two hours per week.

Practice in running curves and setting slope stakes; measurement and computation of quantities; construction of maps and profiles.

Field and office work, six hours per week.

Course 14.

Reinforced Concrete Construction.

Professor Brydone-Jack.

General theory of reinforcement; reinforced beams, columns, arches and retaining walls.

Lectures and class work, three hours per week (First term).

Course 15.

Retaining Walls and Foundations.

Mr. Moffatt.

Investigation of principles of earth pressure, developed from theory of compound stress; application to thrust of earth against a wall; principles and design of retaining walls.

Foundations on rock, ordinary soils, compressible soils and under water; pile foundations in timber and concrete.

Elementary principles of design of dams.

Lectures, two hours per week.

Course 16.

Roof, Truss and Bridge Design.

Professor Brydone-Jack.

Calculation of stresses and design of wooden and iron roof trusses, highway and railway bridges, trestles, viaducts and arches.

Lectures, three hours per week; class work, six hours per week.

COURSE 17.

SEWERAGE AND SEWAGE DISPOSAL.

Mr. Bankson.

Elements of sanitary engineering; design and construction of sewerage systems; modern methods of sewage purification.

Lectures, three hours per week (one term only); class work, three hours per week (one term only).

COURSE 18.

STRENGTH OF MATERIALS.

Mr. Bankson.

The elasticity and strength of engineering materials under different conditions; resilience; impact stresses; calculation of moments of inertia; shearing forces and bending moments in simple and continuous beams; stresses in beams and girders; deflection of beams; investigation and design of columns, shafts and springs; thick cylinders; torsion combined with tension or bending.

Lectures, two hours per week in First Term and three hours per week in Second Term.

COURSE 19.

SURVEYING I.

Assistant Professor Johnstone (Lectures, Class-work and Mapping).

Assistant Professor Johnstone, Mr. Bankson, Mr. Moffatt (Field Work).

First Term—

Theory: Measurement of lines; measurement of angles; measurement of direction; measurement of differences of elevation; care and adjustment of various surveying instruments; open and closed transverses; surveying problems.

Practical Work: Use of surveying instruments; simple problems with transit and tape; differential levelling.

Second Term—

Theory: Observation for meridian and latitude; problems in levelling; topographical surveying; earthwork computations; straightening curved boundary; computation of areas.

Practical Work: Computations; construction of maps, profiles, etc.; profile levelling; cross-sectioning; transit and tape transverses, etc.

Lectures, two hours per week.

Field and office work, six hours per week.

COURSE 20.

SURVEYING II.

Assistant Professor Johnstone (Lectures, Class-work and Mapping).

Assistant Professor Johnstone, Mr. Bankson, Mr. Moffatt (Field Work).

First Term—

Theory: City surveying; curves; staking-out buildings, street railway tracks, etc.; mining surveying; triangulation; topographic surveying.

Practical Work: A topographic survey, field work and mapping.

Second Term—

Theory: Land Surveying and the system of Dominion Land Surveys; photographic surveying; hydrographic surveying; plane table work.

Practical: Use of stadia, sextant and plane table; short stadia and plane table surveys; three-point problem; two-point problem, etc.

Lectures, two hours per week.

Field and office work, six hours per week.

COURSE 21.

WATER POWER DEVELOPMENT.

Mr. Bankson.

Reconnaissance of water power; structures and equipment; selection of turbines; speed regulation of turbines; governors.

Lectures, two hours per week. (Second term.)

COURSE 22.

WATER SUPPLY AND IRRIGATION.

Professor Brydone-Jack.

Relation of rainfall to runoff from drainage areas; storage of water from drainage areas; reservoirs; calculation of water supply for cities and irrigation purposes; quality of water and relation to disease; distribution systems and plants; filtration and purification.

Lectures, three hours per week (one term only).

EXAMINATIONS.

Examinations are set in December, on the work covered in the First Term, in all lecture courses given in the Department of Civil Engineering, to First and Second Year students, and in April on the work covered in the Second Term. The right is reserved to the examiners, however, to include in the April examinations questions on the work of the First Term. All practical examinations for students of the First and Second Years are set in April.

Students of the Third and Fourth Years in the Department of Engineering are examined in December only on such subjects as are finished in the First Term.

Equipment of the Department of Civil Engineering.

SURVEYING INSTRUMENTS—The University has the following equipment of surveying instruments:—

Buff & Buff Transit, with stadia wires, gradienter and solar attachment.
Cooke Transit Theodolite, stadia wires and attachments.
K. & E. Transit, stadia wires and attachments.
K. & E. Extra Fine Light Mountain Transit.
Watts' Latest Pattern Transit.
Dietzgen Mountain Transit.
Dietzgen 6″ Transit.

5″ Dominion Land Surveyor's Transit.
Buff & Buff Dumpy Level.
Buff & Buff 18″ Y Level.
Cooke Reversible Level.
Stanley New Pattern Level.
K. & E. 18″ Y Level.
Watts' Y Level.
Railway Compass, 4″ Compass and Prismatic Compass.
Pocket Sextant and Sextants reading to 10 seconds.
Plane Table, Current Meter, Levelling Rods, Pickets, Chains, Tapes, Hand Levels, Stadia Rods, Slide Rules, Planimeter, Pantagraphs, Three-armed Protractor, etc.

MATERIAL TESTING LABORATORY.—This laboratory is equipped with a large Testing Machine of 200,000 lbs. capacity, a Riehle Yale Extensometer, a Compressometer, a Transverse Indicator, and all the necessary tools for tensile, compressive, transverse and shearing tests. The machine is especially designed so that it can make transverse tests on beams eight feet long. It is both automatic and autographic, and is driven by an eight-horsepower 500-volt direct current motor. The machine is used for testing the strength of iron, steel, wood, stone, brick, concrete and reinforced concrete used in engineering structures.

The laboratory also contains a machine for testing abrasion and for the preparation of specimens, and a hydraulic machine of 10,000 lbs. capacity for crushing and transverse tests.

CEMENT LABORATORY.—This laboratory is equipped with all the apparatus for making the usual commercial tests on hydraulic cements.

The apparatus includes a Riehle Shot Testing Machine, a Riehle Automatic Beam Testing Machine for making tensile compressive, transverse and torsion tests; briquette moulds, sand and cement sieves, Vicat needle apparatus and Gillmore needles, balances, moist closet, immersion tanks, mixing tables, steaming and boiling apparatus, drying oven, volumenometers specific gravity apparatus and other accessories. The beam testing machine is run by a three-phase 60-cycle motor, and is also provided with batteries for automatic record.

DRAWING MODELS AND BLUE PRINT ROOM.—Several models have been made especially to order for use in Projection and Descriptive Geometry, while more are being ordered.

The blue print room has a large blue print frame supported by a carriage, so that the frame can be turned in any direction or at any angle.

Provision is made for washing and drying blue prints, as well as for preparing same, if necessary.

DEPARTMENT OF ELECTRICAL ENGINEERING.

EDWARD P. FETHERSTONHAUGH, B.Sc., A.M. Can. Soc. C.E.
Assoc. A.I.E.E.............*Professor of Electrical Engineering*
JOHN W. DORSEY, E.E.........*Lecturer in Electrical Engineering*

COURSE 1.

CONTINUOUS CURRENTS AND CONTINUOUS CURRENT MACHINERY.

Mr. Dorsey.

A course of lectures on the flow of continuous currents in circuits of various kinds, the laws governing the growth and decay of such currents the laws of magnetism, and the application of these laws and principles to the design and operation of direct current machinery.

Two lectures per week.

COURSE 2.

ALTERNATING CURRENTS AND ALTERNATING CURRENT MACHINERY.

Professor Fetherstonhaugh.

A course of lectures involving a study of the flow of alternating currents in circuits containing resistance reactance and capacity, separately and combined, and the application of these laws to the design of alternating current machinery.

Three lectures per week.

COURSE 3.

ELECTRICAL MACHINE DESIGN.

Mr. Dorsey.

Details and assembly drawings of, and full calculations involved in the design of direct and alternating current apparatus, such as motors, transformers, generators, etc.

One lecture and three hours per week in draughting-room.

COURSE 4.

ELECTRIC LIGHTING AND POWER DISTRIBUTION.

Professor Fetherstonhaugh.

Design of lighting and power systems, including generating plant, distributing and transmission lines, and the application of power to illumination and industrial purposes.

Three lectures per week. First Term.

COURSE 5

ELECTRIC TRACTION.

Professor Fetherstonhaugh.

This course covers the engineering questions and calculations involved in the design, construction and operation of electric railways. It involves Engineering Preliminaries, Types of Motors, their characteristics, speed curves, methods of control and the design of the generating plant, and the overhead and track construction.

Three lectures per week. Second Term.

Course 6.

High Tension Transmission.

Professor Fetherstonhaugh.

Mathematical investigations of the problems involved in the design of high tension lines, the selection of voltage and frequency, calculations of regulation under different conditions of load, lightning protection, etc.

One lecture per week. Second Term.

Course 7.

Continuous Current Laboratory.

Mr. Dorsey.

To supplement the lecture course on Continuous Currents and Continuous Current Machinery, there will be a course of practical work in the laboratory, in which students will be trained in the use of electrical machines of different types, and the various methods of testing electrical machinery to determine the uses to which they may be put and their limitations.

Two laboratory periods per week of two hours each.

Course 8.

Alternating Current Laboratory.

Professor Fetherstonhaugh and Mr. Dorsey.

A course of experimental work with alternating current motors, single phase and polyphase, generators, transformers, meters of various types, the oscillograph, and other alternating current apparatus. The student in this course will be instructed to investigate the characteristics of circuits, instruments and machines, and will be trained to use his own initiative as far as is possible in determining the methods to be pursued.

Three laboratory periods per week of three hours each.

COURSE 9.

ELEMENTS OF ELECTRICAL ENGINEERING.

Mr. Dorsey.

A general treatment of the elementary considerations involved in problems relating to the generation, transmission and utilization of electrical power and an accompanying course of laboratory instruction, consisting of tests and experiments with continuous and alternating current machinery, designed to verify the laws of electricity and magnetism and to familiarize the student to some extent with the characteristics and limitations of the various types of machines to be met with in practice.

Lectures, two hours per week.

Laboratory, one period per week.

EXAMINATIONS.

Examinations are set in December in the Department of Electrical Engineering only on such lecture courses as are finished in the First Term.

Electrical Laboratories.

Continuous Current Laboratory—

This laboratory has been equipped to enable the students in the shortest possible time to perform a large number of tests and investigations. A 30 horse-power, 20 kilowatt motor-generator takes alternating current from the Winnipeg Electric Railway Company's system and converts it into direct current at 110 volts for use in the laboratory. A number of machines of various types are used, among which may be mentioned the following: a 7 horse-power, 110 volt, Western Electric, auxiliary pole, variable speed motor; a 3 horse-power, 110 volt, Westinghouse, type "R" series motor; a 6 kilowatt, 125 volt, Westinghouse, compound wound, type "S" generator; a 4 kilowatt, 110 volt, Edison bipolar generator, and a 2 kilowatt, 125 volt, General Electric, compound wound generator. The laboratory is also supplied with a number of ammeters, voltmeters, tachometers, etc., and the necessary switching and controlling apparatus and instrument tables.

Standardizing Laboratory—

The standardizing laboratory has been equipped with a "Leeds Northrup" potentiometer with multipliers, shunts, galvanometer and two Weston standard cells, two Kelvin balances, a "Composite" and a "Deciampere," a Kelvin Electrostatic Voltmeter, rheostats, switches, etc. For obtaining ready readings of current and voltage for calibrating purposes. seventy-five three-quarter ampere and six twenty-five ampere storage cells have been installed.

Alternating Current Laboratory—

In the alternating current laboratory a number of machines and pieces of apparatus of representative types have been installed, among which may be mentioned: A 7½ kilowatt General Electric revolving field, 60 cycle alternating current generator, with taps for 1, 2, 3, 6 and 12 phase connections; a 10 horse-power Westinghouse vraiable speed direct current motor fro driving the generator; a 10 kilowatt Westinghouse Rotary Converter, with slip rings giving 1, 2 or 3 phase on the alternating current side, and wound for 110 volts on the direct current side; a 1 horse-power Wagner single phase motor, a 3 horse-power 3 phase Westinghouse "Squirrel Cage" type induction motor, transformers of standardtype and of types specially designed for experimental purposes, and a General Electric 3 horse-power induction motor, with wound rotor. An oscillograph of the 3 galvanometer wire-loop type with all the necessary switching and controlling auxiliaries, has bee: added to the equipment, and has proved of great value in investigating alternating current phenomena. A large number of portable instruments and the necessary variable inductances, rheostats, switching and loading devices, are also provided, with the aid of which students are able to become thoroughly familiar with the characteristics of the various machines and the methods of investigating them.

Photometry Room—

This room is equipped with apparatus for tests of candle power of incandescent lamps, their power consumption, efficiency, and the effects of varying voltage on these characteristics. The equipment consists of a Leeds and Northrup Co.'s three meter-precision photometer of the latest pattern, with revolving socket for mean horizontal candle power readings; also the necessary meters, standard lamps and other accessories.

Storage Battery—

To obtain a steady supply of current for laboratory tests, a storage battery of 60 cells of the Gould type is available, the capacity of the battery being 25 amperes for 8 hours at approximately 110 volts.

DEPARTMENT OF MECHANICAL ENGINEERING

..................................*Professor of Mechanical Engineering*

The University Council has this year established a Department of Mechanical Engineering. For full information regarding the course, see pamphlet to be issued later.

Below will be found a provisional statement of the courses to be given in this department to students in other departments of Engineering.

COURSE 1.

KINEMATICS OF MACHINERY.

Elements of mechanism, relative motion, virtual centres, velocity and acceleration of machine parts, classification of simple mechanisms, design of wheel teeth, belt gearing and cams.

One lecture and three hours drawing per week. First Term.

COURSE 2.

MECHANICS OF MACHINERY.

Application of the principles of mechanics to the determination of forces acting in machine links; frictional resistances and efficiency of machines, including sliding, journal, rolling, gear and belt friction.

One lecture and three hours drawing per week. Second Term.

COURSE 3.

MECHANICAL ENGINEERING, I.

A course of lectures on power plants, covering thermodynamics, properties of gases and of steam, performance, testing and mechanics of the steam engine, valve gears, fuels and combustion, steam boilers, steam turbines, condensers, feed water heaters, and auxiliaries, gas engines, gas producers and the general considerations involved in the design and economical operation of power plants and the selection of equipment.

COURSE 4.

MACHINE DESIGN, I.

A course of lectures on the application of the principles of the strength of materials to the design of bolts, rivetted joints, shafts, bearings, gear wheels, belt pulleys, chain gearing and clutches.

Two lectures per week.

COURSE 5.

MECHANICAL DRAWING.

A course in design and drawing of machines and their parts, working drawings, assembly drawings, etc.

Three hours per week in draughting-room.

COURSE 6.

MECHANICAL ENGINEERING, II.

Lectures and problems on steam power plant systems and their design; feed water systems; condenser and heater systems; high pressure and exhaust piping systems; drips and oiling systems.

Two lectures per week. Second Term.

COURSE 7.

MACHINE DESIGN, II.

Design of engine parts; fly wheels, connecting rods, cranks pistons, frames, cross-heads, valves, etc.

Two lectures per week. First Term.

DEPARTMENT OF ARCHITECTURE

ARTHUR ALEXANDER STOUGHTON, Ph.B. (School of Architecture, Columbia) ....*Professor of Architecture*

The University Council has this year established a Department of Architecture. For full information regarding the course see pamphlet to be issued later.

DEPARTMENT OF ENGLISH

ALEXANDER W. CRAWFORD, M.A., Ph.D....................*Professor*
AARON J. PERRY, M.A. ....*Lecturer*

FIRST YEAR—ENGINEERING.

ENGLISH—Lectures, Two hours per week.

Rhetoric and Composition—A practical course in writing based on a study of rhetorical principles and of prose masterpieces. Lectures and text-book study of the chief qualities of good composition, but with emphasis on practice in writing, including essays (chiefly exposition), reports, letters, etc.

Text-book: "English Composition in Theory and Practice," by H. S. Canby and others (The Macmillan Co.).

Examinations.—Two papers, one in December and one in April, each including (a) questions on rhetorical principles: (b) essay on subject given; (c) compiling of letter or report from data supplied; (d) questions on prose selections in text-book. (First Term, Chapters I. to VI.; Second Term, Chapter VII. to end.)

DEPARTMENT OF MATHEMATICS

Neil Bruce MacLean, M.A.	*Professor*
Lloyd A. H. Warren, M.A.	*Assistant Professor*
Harold R. Kingston, M.A.	*Lecturer*

For courses offered to Engineering students see under University Departments of Instruction in Arts, Department of Mathematics and Astronomy, pages 136 to 138.

DEPARTMENT OF PHYSICS

Frank Allen, M.A., Ph.D., F.R.S.C.	*Professor*
R. K. McClung, M.A., D.Sc., F.R.S.C	*Assistant Professor*
O. T. Anderson, B.A.	*Demonstrator*

For courses offered to Engineering students see under University Departments of Instruction in Arts, Department of Physics, pages 144 to 146.

DEPARTMENT OF CHEMISTRY.

Matthew A. Parker, B.Sc., F.C.S	*Professor*
H. P. Armes, B.Sc, Ph.D.	*Lecturer*
Jon Arnason, B.A.	*Demonstrator*
————————	*Student Assistant*

For courses offered to Engineering students see under University Departments of Instruction in Arts, Department of Chemistry, pages 157 to 163.

DEPARTMENT OF GEOLOGY AND MINERALOGY

Robert C. Wallace, M.A., Ph.D., D.Sc., F.G.S	*Professor*

For courses offered to Engineering students see under University Course of Instruction in Arts, Department of Geology, pages 150 to 156.

Curricula in Medicine

Curricula in Medicine

The University of Manitoba confers two degrees in Medicine, viz., Doctor of Medicine (M.D.) and Master of Surgery (C.M.). The following are the requisites for proceeding in course to admission to these degrees:

I.—DOCTOR OF MEDICINE.

MATRICULATION.

The requirements for Matriculation for Medicine are set forth in detail on pages 41 and 42.

NOTE 1.—Arts Matriculation will be accepted in lieu of Medical Matriculation, provided it includes the Science option.

NOTE 2.—In the case of candidates who do not matriculate by examination but are recommended for the examination of the First Year in Arts by an affiliated College, the standing of the First Year in Arts may be accepted for pro tanto standing.

NOTE 3.—A Matriculation certificate of any University recognized by the University of Manitoba will be accepted for pro tanto standing on Medical Matriculation.

NOTE 4.—Provincial Department of Education certificates of the Dominion of Canada will be accepted pro tanto towards Medical Matriculation.

UNDERGRADUATE COURSE IN MEDICINE.

After having matriculated, the student of Medicine is required to pass five examinations before being admitted to the degree of Doctor of Medicine, viz., the First, the Second, the Third, the Fourth and the Fifth Year examinations.

Before presenting himself for each of these examinations, the candidate shall produce sufficiently certified tickets, from some University, College or School, recognized by the University of Manitoba, for the courses of lectures specified hereinafter; or, he shall have taken to the satisfaction of the Professor concerned the courses of lectures, demonstrations, laboratory practice, etc., of the University of Manitoba in those subjects in which the University has undertaken to provide instruction, and shall provide sufficiently certified tickets from some university, college or school, recognized by the University of Manitoba, for the remaining courses of lectures specified hereinafter. The Manitoba Medical College, in affiliation with the University of Manitoba, provides instruction and facilities for laboratory and clinical practice in all subjects not undertaken by the University.

By *sufficiently certified* tickets, it is meant that each ticket shall have entered upon it the number of lectures delivered on the subject and the exact number of lectures attended by the student, and that each ticket shall be signed by the professor, and further that the student presenting the ticket shall have actually attended three-fourths of the whole number of lectures delivered on the subject. Such tickets must be lodged with the Registrar by the candidate, at least ten days before the beginning of the examination for which he intends presenting himself.

Each lecture (unless otherwise stated) shall be of one hour's duration, and, as far as practicable, not more than one lecture on each subject shall be delivered on each separate day.

First Year Examination.

1. Physics (a course of 70 lectures). Instruction in Physics is provided by the University (see Course 1, page 143). Two examinations are given, one in December and one in April of each academic year, corresponding to Parts I. and II. of the course respectively. A failure in either paper or in both counts as one failure in determining a candidate's standing. A candidate failing in but one paper is required to take a supplemental examination only in the paper in which he has failed.

2. Zoology (a course of 50 lectures). Instruction in Zoology and Practical Zoology is provided by the University (see Course 2, page 172). Two examinations are given, one in December and one in April.

3. Practical Zoology (a course of 25 periods of two hours each (see Course 3, page 173.)

4. Chemistry (a course of 50 lectures). Instruction in Chemistry and Practical Chemistry is provided by the University. See pages 157 and 161. Two examinations on the theoretical part of the course are given, one in December and one in April.

5. Practical Chemistry (a course of 50 periods of two hours each).

6. Anatomy (a course of 50 demonstrations).

7. Practical Anatomy (Upper Limb, Thorax and Abdomen).

Second Year Examination.

1. Anatomy (a further course of 50 demonstrations).

2. Practical Anatomy (the whole body).

3. Organic Chemistry (a course of 20 lectures). Instruction in Organic Chemistry is provided by the University. See page 167. No special examination is set, but the work of the course is included in the examination in Physiology (see 4, below).

4. Physiology (a course of 50 lectures). Instruction in Physiology and Practical Physiology is provided by the University. See pages 163 to 165 and 167 to 168.

5. Practical Physiology (a course of 50 periods of 2 hours each).

6. Materia Medica and Pharmacy (a course of 30 lectures)

7. Sanitary Science (a course of 25 lectures).

8. Histology (a course of 25 demonstrations). Instruction in Histology and Practical Histology is given by a University Professor in Manitoba Medical College Building. See Course 1, page 225.

9. Practical Histology (a course of 50 periods of 2 hours each).

10. Embryology and Morphology (a course of 30 lectures).

Third Year Examination.

1. Anatomy, Applied (a course of 35 demonstrations).

2. Physiology (a further course of 75 lectures). Instruction in Physiology and Practical Physiology is provided by the University. See pages 163 to 166 and 167 to 168.

3. Practical Physiology (a further course of 50 periods of 2 hours each).

4. Therapeutics (a course of 50 lectures).

5. Medical Jurisprudence (a course of 15 lectures).

6. Pathology (a course of 50 demonstrations). Instruction in Pathology and Practical Pathology is given by a University Professor in Manitoba Medical College Building. See Course 2, page 225.

7. Practical Pathology (a course of 50 periods of 2 hours each).

8. Practical Pharmacology (a course of 20 demonstrations of two hours each.

9. Physical Diagnosis (Outdoor), (a course of 25 demonstrations).

10. Splints and Bandaging (Out-door), (a course of 25 demonstrations).

No examination is required in Physical Diagnosis and Splints and Bandaging.

Fourth Year Examination.

1. Bacteriology (a course of 25 demonstrations). Instruction in Bacteriology and Practical Bacteriology is given by a University Professor in Manitoba Medical College Building. See Course 3, page 225.
2. Practical Bacteriology (a course of 25 periods of 2 hours each).

3. Medicine, Part I. (a course of 50 lectures).
4. Surgery, Part I. (a course of 50 lectures).
5. Clinical Medicine (a course of 75 lectures).
6. Clinical Surgery (a course of 75 lectures).
7. Obstetrics (a course of 30 lectures).
8. Clinical Obstetrics.
9. Gynæcology (a course of 35 lectures).
10. Pediatrics (a course of 25 lectures).
11. Anaesthetics (a course of 10 lectures or demonstrations).

No examination is required in this year in Clinical Medicine, Clinical Surgery and Anaesthetics.

Fifth Year Examination.

1. Medicine, Part II. (a further course of 50 lectures).
2. Surgery, Part II. (a further course of 50 lectures).
3. Clinical Medicine (a further course of 75 lectures).
4. Clinical Surgery (a further course of 75 lectures).
5. Obstetrics (a further course of 20 lectures).
6. Clinical Obstetrics.
7. Clinical Gynæcology.
8. Ophthalmology and Otology (a course of 20 lectures and 20 practical demonstrations).
9. Operative Surgery on the Cadaver (a course of 25 practical demonstrations).

10. Orthopedic Surgery (a course of 25 lectures or demonstrations).

(NOTE.—The examinations in Medicine and Surgery cover both Fourth and Fifth Year work. Orthopedic Surgery is included in the examination on General Surgery.)

Each candidate for this examination shall also furnish documentary evidence of attendance for twenty-four months at some incorporated General Hospital, and also of eight months' practice in a Lying-in Hospital, or of having had equivalent obstetrical advantages, with a certificate of attendance upon at least eight cases of labor. He must also present twelve satisfactory reports of cases, six in Medicine and six in Surgery, from observations actually made by himself in a hospital having not less than fifty beds for public ward patients. These reports must be certified as valid by the chief medical officer of the hospital in which they are made.

The tickets (except the General Hospital ticket) for examination must all be for attendance subsequent to the date when the candidate presenting them has gone up for his Second Year examination, and must extend over two full winter sessions of seven months each.

FOUR YEAR COURSE FOR GRADUATES IN ARTS.

When a student is a graduate in Arts of the University of Manitoba or of any University in His Majesty's Dominions or elsewhere, recognized by the University of Manitoba, he may complete his medical course in four winter sessions of seven months each, and shall not be required to produce a ticket for Physics, Zoology, Chemistry, Practical Chemistry, or to pass an examination in Physics, Zoology, Chemistry, or Practical Chemistry of the First Year, provided he shall satisfy the Board of Studies that he has already taken at least second class honors in such subjects in his course in Arts in the University of Manitoba, or equivalent standing in the University in which his Arts course was taken.

The tickets of such student in Medicine, Surgery, Obstetrics and Pediatrics, Gynæcology, Clinical Medicine, Clinical Surgery, and Pathology, must all be for attendance subsequent to the end of his second full winter session spent in the study of Medicine. Honor graduates in Natural and Physical Science shall not be required to present tickets, or pass an examination in any subjects included in their course in Arts, in which they have obtained at least second class honors.

A graduate in Arts may take the examination papers of the First, Second and Third Years in Medicine at such time as he can present sufficiently certified tickets in each subject during the first two years of his course.

ADMISSION AD EUNDEM STATUM.

A student of Medicine in another University may be admitted *ad eundem statum* in the course in Medicine in the University of Manitoba.

In the case of any student from another university applying for admission *ad eundem statum* in the University of Manitoba, it shall be at the option of the Board of Studies to admit such student, even although his tickets may conflict with the foregoing regulations, but no student from another university can be admitted to the Fifth Year Examination unless he has attended one full seven months' winter session, taking out all the Fifth Year tickets of a Medical School in the Province of Manitoba affiliated with the University.

EXAMINATIONS IN MEDICINE.

There is provided one paper for Pass and Honors in each subject, and the total value of each paper is one hundred marks. Fifty per cent. of the marks in each subject is required to satisfy the examiners.

The examinations are written examinations, except in clinical and practical subjects.

To obtain Honors in each subject, or in the whole examination, of any year, a candidate must obtain 67 per cent. of the marks given in each subject, or of the total marks given for the examination of the year.

Supplemental examinations in each year in Medicine will be allowed to those students who fail in not more than two subjects.

Such supplemental examinations or conditions *must* be removed as follows:

(a) Supplemental examinations of the First Year must be removed before the commencement of the Third Year.

(b) Supplemental examinations of the Second Year must be removed before the commencement of the Fourth Year.

(c) Supplemental examinations of the Third Year must be removed before the commencement of the Fifth Year.

For more detailed information as to supplemental examinations see pages 243ff.

All degrees in Medicine are conferred by the Council of the University at its regular meetings or at meetings specially called for that purpose.

TEXT-BOOKS IN MEDICINE.

Anatomy—

Cunningham's Manual of Practical Anatomy.
Cunningham's Text-book, 4th edition, edited by Robertson.
Gray's Anatomy.
Morris' Anatomy.
Quain's Anatomy.
Weidersheim's Structure of Man.
McLachlan's Applied Anatomy.
Treves' Surgical Applied Anatomy.
Bickham's Surgical Operations.

Anaesthetics—Hewitt, Luke, Boyle.

Bacteriology—McFarland, Connell, Jordan, Muir and Ritchie, Park, Hiss.

Chemistry—

R. H. Aders Plimmer, Practical Physiological Chemistry (Longmans, London and New York).
Haskin's Organic Chemistry for Medical Students (2nd Edition). (Wiley, New York.)

Clinical Medicine—

Wilson's Medical Diagnosis.
Webster's Diagnostic Methods.
DaCosta's Physical Diagnosis.
Simon and Wood's Clinical Diagnosis.
Sahli's Diagnostic Methods.

Clinical Surgery—Pearce Gould, Eisendrath, Da Costa, Spencer and Gask.

Dermatology—Jackson.

Diseases of Children—Fruhwald (Westcott), Koplik, Fischer, Holt, Still.

Gynaecology—Dudley, Garrigues, Penrose, Ashton, Bovee.

Histology—Stohr, Piersol, Schäfer.

Hygiene—Egbert, Parkes, Rohe, Harrington, Stevenson and Murphy.

Materia Medica and Pharmacy—Bruce, Cushney, Schlief, Sollman.

Medical Jurisprudence—Reese, Draper, Mann, Emerson.

Medicine—Osler, Tyson, Edwards, French.

Mental Diseases—Clouston.

Obstetrics—Williams, Wright, Jellett, Hirst, Tweedy and Wrench.

Ophthalmology—Fuchs, May, Wood and Woodruff, Swanzy.

Orthopedic Surgery—Taylor, Bradford and Lovett, Whitman.

Otology—Dench, Bacon, McBride.

Pathology—Stengel, Coplin, Delafield and Prudden, Fraught's Laboratory Diagnosis.

Physics—Principles of Physics, A. P. Gage (Revised edition)

Physiology—
Schäfer, Text-book of Physiology, 2 vols.
Schäfer's Experimental Physiology (1913 edition).
Alcock and Ellison, Practical Physiology.
Starling, Stewart, Howell, Haliburton.

Practical Pharmacology—Edmunds and Cushny.

Surgery—Rose and Carless, International Text Book, Stewart, Foote's Minor Surgery, Keen's System of Surgery, Kelly and Noble, Bennie's Operative Surgery, Burghard's Operative Surgery.

Therapeutics—Sollmann, Brunton, Bruce's Principles of Treatment.

Throat and Nose—Coakley, McBride, Ballenger.

Zoology—Marshall's The Frog, Parker's Zootomy, Beddard's Elementary Practical Zoology.

Dictionaries—Gould, Appleton, Dorland.

FEES.

Registration and tuition fees are payable to the Bursar of Manitoba Medical College. For information as to these the student or prospective student is referred to the calendar of that institution. Examination and degree fees are payable to the Registrar of the University. For the amount of these, see pages 267 to 270.

II.—MASTER OF SURGERY.

Candidates for the degree of Master of Surgery (C.M.) must have been admitted already to the degree of Doctor of Medicine of the University of Manitoba, or must, at the same examination at which they become candidates for the C.M. degree, be awarded standing on the final examination of the course for the degree of Doctor of Medicine.

The examination for the C.M. degree consists of:

1. A clinical examination on Operative Surgery.
2. The writing under supervision of a Thesis on some assigned subject in Surgery.

The successful candidate must obtain 75% of the total marks in this examination.

For the fee in connection with this examination see page 269.

University Departments of Instruction in Medicine

University Departments of Instruction in Medicine

DEPARTMENT OF PHYSICS.

Frank Allen, M.A., Ph.D., F.R.S.C	*Professor*
R. K. McClung, M.A., DSc., F.R.S.C	*Assistant Professor*
O. T. Anderson, B.A.	*Demonstrator*

For courses offered to students of Medicine see under University Departments of Instruction in Arts, Department of Physics, pages 143 to 146.

DEPARTMENT OF CHEMISTRY

Matthew A. Parker, B.Sc., F.C.S	*Professor*
H. P. Armes, B.Sc., Ph.D.	*Lecturer*
Jon Arnason, B.A.	*Demonstrator*
————————	*Student Assistant*

Course 1.

For courses offered to students of Medicine see under University Departments of Instruction in Arts, Department of Chemistry, pages 157 to 162.

DEPARTMENT OF PHYSIOLOGY AND PHYSIOLOGICAL CHEMISTRY.

Swale Vincent, M.D., D.Sc., M.R.C.S., L.R.C.P., F.R.SS.E. & C., F.Z.S.	*Professor*
A. T. Cameron, M.A., B.Sc	*Assistant Professor*
T. I. Brownlee, B.A.	*Student Demonstrator*

For courses offered to students of Medicine see under University Departments of Instruction in Arts, Department of Physiology and Physiological Chemistry, pages 163 to 171.

DEPARTMENT OF ZOOLOGY.

C. J. Triggerson, M.A., Ph.D.	*Assistant Professor*

For courses offered to students of Medicine see under University Departments of Instruction in Arts, Department of Zoology, pages 171 to 176.

DEPARTMENT OF BACTERIOLOGY, PATHOLOGY AND HISTOLOGY.

GORDON BELL, B.A., M.D., C.M. .... *Professor*

COURSE 1.

Histology.

This course is for students of the Second Year in Medicine, and consists of 25 didactic lectures and 100 hours' laboratory work.

Full instruction will be given in laboratory technique, and each student is required to prepare, stain and mount a full set of specimens for himself.

An excellent projective apparatus is provided for demonstrating specimens.

COURSE 2.

Pathology.

This course is for Third Year students in Medicine, and consists of 50 didactic lectures and 100 hours' laboratory work devoted to preparation and examination of pathological tissues, demonstration of gross specimens, examination of secretions and excretions, etc.

Students are required to prepare autopsies in rotation as opportunity presents.

COURSE 3

Bacteriology.

This course is for Fourth Year students in Medicine, and consists of 25 didactic lectures and 50 hours' laboratory work. It is devoted to preparation of culture media, staining and identification of bacteria, culture methods, animal inoculation, and vaccine therapy immunity.

Curriculum in Law

Curriculum in Law

The Universiay of Manitoba confers one degree in Law, viz., Bachelor of Laws (LL.B.). The following are the requisites for proceeding in course to this degree.

BACHELOR OF LAWS

MATRICULATION.

The subjects of this examination are the same as those of the matriculation examination for the course in Arts of the University of Manitoba; the same standard is required to entitle the candidate to pass, and the same regulations obtain regarding failures, conditions, etc. (See page 46.)

NOTE 1.—A candidate who presents documentary evidence to the Registrar that he has passed the Primary and First Intermediate Examinations of the Law Society of Manitoba, or of such other Law Society as the Board of Studies may from time to time recommend, may be admitted to the Course in Law without having passed the Matriculation Examination.

NOTE 2.—Any person who is a graduate in Arts of any University in His Majesty's Dominions, or who has been admitted a Barrister or Solicitor by the Law Society of Manitoba, or by any Law Society recognized by the University of Manitoba, may enter the Course in Law at the Examination of the Second Year.

COURSE IN LAW.

After having matriculated, the student of the course in Law must pass in separate years three examinations, before being admitted to the degree of Bachelor of Laws, viz., the First, the Second, and the Third Year examinations, as set forth hereunder:

First Year.

1. CREIGHTON.—Logic. (Introduction and Part I.)

2. STOUT.—Psychology.

3. BAGEHOT.—English Constitution

4. O'Sullivan's Canadian Manual.—Civil Polity.
5. Taswell-Langmead.—Constitutional History.
6. Williams.—Real Property.
7. Anson.—Contracts.
8. Deans.—The Student's Legal History.
9. Street.—Foundations of Legal Liability, Vol. I. (Tort.)

The examination on subjects 1, 4, 6 and 7 will be held in December, the examination on the remaining subjects of the First Year in April.

Second Year.

1. May.—Constitutional History.
2. Tarring.—The Law Relating to the Colonies.
3. MacKenzie.—Roman Law.
4. Best.—Law of Evidence.
5. Ratcliffe and Miles.—Cases Illustrating Principles of the Law of Torts.
6. Challis.—Law of Real Property.
7. Dicey.—Conflict of Laws.
8. Snell.—Equity.
9. Street.—Foundations of Legal Liability, Vol. II. (Contract).

The examination on subjects 2, 4, 6 and 8 will be held in December, the examination on the remaining subjects of the Second Year in April.

Final Year.

1. Foa.—Landlord and Tenant.
2. Hall.—International Law.
3. Holdsworth.—A History of English Law, Vol. I.
4. Broom.—Constitutional Law.

5. Maine's Ancient Law.—Jurisprudence.

6. Smith.—Mercantile Law, Vol. I.

7. Dicey.—The Law of the Constitution.

8. Street.—Foundations of Legal Liability, Vol. III. (Actions).

The examination on subjects 2, 4, 5 and 6 will be held in December, the examination on the remaining subjects of the Final Year in April.

The regular examinations for undergraduates in Law are are given in part in December and in part in April of each academic year. The date of the opening of the December examinations is fixed in each year by the Council of the University. The April examinations open on the third Monday in that month in each year.

The percentages required in the examinations in Law are the following: 34 per cent. on each subject; 50 per cent. on the total.

Supplemental examinations in Law are allowed to those students who fail in not more than two subjects, providing their aggregate on the whole examination reaches 50 per cent. of the total marks given; such supplemental examinations must be passed as provided in the case of conditioned students in Arts. (See pages 243 to 248.) Supplemental examinations may be written at the time of the annual examinations in April, or at the time of the annual Supplemental Examinations, which begin on the second Thursday in September.

Degree.

The degree of Bachelor of Laws is conferred on the student who has successfully completed the above course. All degrees in Law are conferred by the Council at its regular meetings, or at meetings specially called for that purpose.

NOTE.—The candidate for admission to the degree of Bachelor of Laws must be of the full age of twenty-one years.

For the fees in connection with the above course see pages 268 to 270.

Miscellaneous Curricula

Curriculum in Pharmacy

The University of Manitoba confers the degree of Bachelor of Pharmacy (Phm.B.). The following are the requisites for proceeding in course to this degree.

BACHELOR OF PHARMACY

Matriculation

Candidates for the degree of Bachelor of Pharmacy must either:

1. Have passed a Matriculation Examination accepted by the University of Manitoba; or

2. Be the holders of such other certificates as in the opinion of the University may be equivalent thereto.

Additional Preliminary Requirements

A—Candidates for the degree resident in the Province of Manitoba must have complied with all the requirements prescried from time to time by the Council of the Pharmaceutical Association of Manitoa for admission to examination for the diploma licensing to practice Pharmacy in Manitoba.

B—Candidates for the degree not resident in the Province of Manitoba:—

(1) Must have devoted at least four years (not being engaged in any other business) to the study of Pharmacy, being apprenticed during that time, to a regular Pharmaceutical Chemist.

(2) Must have attended a full course of lectures, embracing all the subjects of the curriculum, the length of each course being not less than that required from time to time by the Council of the Pharmaceutical Association of Manitoba, and including practical work at some College of Pharmacy recognized by this University.

All candidates who have, prior to June 1, 1905, received the diploma of the Manitoba College of Pharmacy, shall not be required to conform to the above, but shall be allowed their degrees on passing the examination in the subjects hereinafter given.

Examinations.

Candidates for the degree must pass an examination to be held in the month of May of each year, and must present to the Registrar of the University certificates covering all the requirements relating to such candidates as given above.

The subjects for this examination are as follows:

(a) Botany, with use of the microscope.

(b) Theoretical and Practical Chemistry.

(c) Physics.

(d) Materia Medica, and Toxicology.

(e) Theory and Practice of Pharmacy, including interpretation of Prescriptions and Dispensing.

These examinations are partly written and partly practical.

No candidate is considered as having passed the examination who has not obtained 67 per cent. of the marks allotted; nor is a candidate considered as having passed in any subject who has not obtained at least 50 per cent. of the marks allotted to such subject.

The examination in Botany is that of the Second Year in Arts, the examination in Theoretical Chemistry is that of the Second Year in Arts, and the examination in Physics is that of the First Year in Arts of the University of Manitoba. Candidates for the degree must have attended the University lectures in these subjects during a full annual session before presenting themselves for examination.

Fees.

For Matriculation or registration of Matriculation	$ 5 00
For Tuition (each course of study)	8 00
For annual Examination	8 00
For the Degree of Phm. B.	10 00

The course of studies leading up to License in Pharmacy, and the regulations concerning length of apprenticeship, etc., are outlined in the announcement of the Manitoba College of Pharmacy.

CURRICULUM IN AGRICULTURE

The University of Manitoba confers a degree in Agriculture, viz., Bachelor of Science in Agriculture (B.S.A.). The following are the requisites for proceeding in course to this degree.

BACHELOR OF SCIENCE IN AGRICULTURE

The course for the degree of Bachelor of Science in Agriculture extends over a period of five years.

A student to be admitted to the Third Year must hold a diploma from Manitoba Agricultural College or its equivalent. This represents two years' work.

OUTLINE OF COURSE.

Third Year.

1. Field Husbandry.
2. Agricultural Chemistry.
3. Animal Husbandry.
4. Dairy Husbandry.
5. Horticulture and Forestry.
6. Botany.
7. Animal Biology.
8. English.
9. Physics—Geology, Meteorology, Heat.
10. Veterinary Science.
11. Agricultural Engineering—Mechanics and Drawing.

After completing the first three and a half years of the course, that is to say, in the middle of the Fourth Year, the student is called on to elect one of the following courses in which he will specialize and thus proceed to the degree:

(a) Field Husbandry and Animal Husbandry.

(b) Dairying.

(c) Agricultural Engineering.

Students taking the Field Husbandry and Animal Husbandry Course must spend between their Second and their Fifth Years at least six summer months in practical work on a farm. Those taking the Dairying Course must spend one summer in practical work in a creamery or cheese factory. Those taking the course in Agricultural Engineering must spend a summer with an agricultural implement firm or in work along some similar agricultural machinery line.

Fourth Year.

Course in Animal Husbandry and Field Husbandry.

1. Field Husbandry.
2. Animal Husbandry.
3. Chemistry.
4. Forestry and Entomology.
5. Botany and Bacteriology.
6. English.
7. Physics—Climatology, Drainage, Magnetism and Electricity.
8. Civics.
9. Surveying and Drawing.

Fourth Year.

COURSE IN DAIRYING.

1. Animal Husbandry in relation to Dairying.
2. Field Husbandry in relation to Dairying.
3. Dairy Chemistry.
4. Dairy Husbandry.
4. Dairy Bacteriology.
6. English.
7. Physics—Climatology, Meteorology and Drainage.

Fourth Year.

COURSE IN AGRICULTURAL ENGINEERING.

1. Mechanical Drawing.
2. Work in Machine Shop.
3. Surveying.
4. Chemistry.
5. Electricity and Magnetism.
6. English.
7. Mathematics—Algebra and Geometry.
8. Engineering—Lectures and Outside Reading.

Fifth Year.

COURSE IN ANIMAL HUSBANDRY AND FIELD HUSBANDRY.

1. Field Husbandry.
2. Animal Husbandry.

3. Chemistry.
4. Entomology.
5. Biology—Botany, Plant Pathology, Bacteriology.
6. English.
7. Physics—Advanced Soil Physics.

Fifth Year.

COURSE IN DAIRYING.

1. Animal Husbandry in relation to Dairying.
2. Field Husbandry in relation to Dairying.
3. Dairy Chemistry.
4. Dairy Husbandry.
5. Dairy Bacteriology.
6. English.
7. Physics—Climatology, Meteorology and Drainage.

Fifth Year

COURSE IN AGRICULTURAL ENGINEERING.

(Not yet outlined.)

CURRICULUM IN COMMERCIAL EDUCATION

Candidates for the Diploma in Commercial Education must either:—

1. Have passed the Matriculation Examination required by the University of Manitoba; or

2 Be the holders of such other certificates as in the opinion of the University may be equivalent thereto;

and have complied with the other requirements hereinafter specified.

Matriculation.

Candidates for this examination shall take the following fixed subjects:

English,
History,
Mathematics;

and any two of the following options:

Latin,
French,
German.

The requirements in each of these subjects shall be the same as those for the Matriculation in Arts, and the same standard shall be required to entitle the candidate to pass. (See pages 24 to 41.)

Course of Study.

After fulfilling the requirements in reference to the Matriculation Examination, the candidate shall complete a course of two years' duration. A diploma shall be given to those who are successful in passing an examination in the prescribed subjects.

First Year Examination.

1. English,—as of the First Year in Arts.

2. French or German.—as of the First Year in Arts.

3. Modern History and Geography—"Colonies and Colonial Federations," ed. E. J. Payne. (Macmillan & Co. The English Citizen Series.)

4. Economic History—Clive Day—"History of Commerce."

5. Political Economy—Seager—"Introduction to Economics."

SECOND YEAR EXAMINATION.

1. English,—as of the Second Year in Arts.

2. French or German,—as of the Second Year in Arts.

3. Political Economy,—J. S. Mill—"Principles of Political Economy." (Ed. Ashley, 1909.)

4. Commercial Law and Science.

The time of the examinations shall be the same as that of the examinations in Arts in each year.

General Regulations

General Regulations

REGISTRATION.

All undergraduates in Arts and Medicine in attendance at the various affiliated Colleges, whether attending lectures in the University or not, shall register, in each year of their course, with the Registrar of the University within two weeks after entering College.

All undergraduates in Medicine must produce certificates of registration from the University before registering in Manitoba Medical College.

EXAMINATIONS.

General Regulations

1. The regular examinations for undergraduates in Arts and Engineering are given in part in December and in part in April of each academic year. The same applies to subjects of the First Year in Medicine taught in the University. For definite information as to the work upon which each of these sets of examinations is based, the student is referred to the curricula of the various years as set forth elsewhere in this Calendar. The date of the opening of the December examinations is fixed in each year by the Council of the University on recommendation of the Board of Studies. The April examinations open on the third Monday in that month in each year.

2. Examinations in Arts and in Law may be held at such outside centres in Manitoba, Saskatchewan, Alberta and British Columbia, as the Board of Studies may from time to time approve of; it being understood that this does not apply to the practical examinations in Arts, where such are required.

Wherever in the Provinces of Manitoba, Saskatchewan, Alberta and British Columbia, incorporated colleges have been, or may be established, the University of Manitoba, on being satisfied that their buildings are sufficient, and that the staff is competent to give instruction in the Arts course, in whole or in part, may give recognition to such institutions, and on arrangements being made by candidates or otherwise to meet the necessary expenses, grant examinations to such institutions, and give university standing to successful candidates.

Matriculation Examinations.

1. The Examinations for Matriculation into all Faculties are held twice in each year, beginning on the second Tuesday in June and on the second Thursday in September.

2. The examination in June is held in Winnipeg, and on application at outside centres in Manitoba in connection with the College, Collegiate Institute or High School, as the case may be. In 1913 these June examinations were held at the following points:—Baldur, Boissevain, Brandon, Carberry, Carman, Dauphin, Deloraine, Elkhorn, Gladstone, Killarney, Manitou, Melita, Minnedosa, Morden, Neepawa, Oak Lake, Pilot Mound, Portage la Prairie, Roland, Selkirk, Souris, Stonewall, Swan River, Treherne, Virden and Wawanesa.

In addition, the June Matriculation Examinations are held on request at such points outside of Manitoba as Regina, Calgary, Edmonton, Saskatoon, Prince Albert, Vancouver and Victoria, and at such institutions as may from time to time be approved by the Board of Studies.

3. *The September Matriculation Examination is held at the University Building only.*

4. Application for a local examination should be made to the Registrar of the University by the trustees or other authorities of a college or school, at least six weeks before the date of examination in each year.

5. The presiding examiner (or examiners) at each centre is appointed by the Board of Studies. Where the number of candidates exceeds fifteen there should be at least two presiding examiners.

6. The fee for the presiding examiner or examiners at a centre is $2.50 per half day each, and this fee is paid by the University where the number of candidates is five or more. Where the number of candidates is less than five, the presiding examiner is paid by the local authorities or by the candidates.

Failures and Supplementals

1. For information regarding Matriculation failures and supplementals see pages 25 and 26.

2. An undergraduate student in Arts who has failed on any paper or papers at the December examinations may proceed

with the work of the second term and may remove the condition or conditions at a supplemental examination given in April before the regular April examinations, and the mark or marks obtained at this supplemental examination will, if higher, replace the original mark or marks in computing the aggregate of the student for the year.

3. A student of the First or Second Years in Arts, who, at the close of the April examinations, has not more than six conditions against him, is granted standing for the year, with supplementals, provided his aggregate is at least 40% of the total maximum marks assigned to all papers of his course.

4. In the case of examinations of the First and Second Years in Arts, where the candidates are given hour-and-a-half papers in some subjects and three-hour papers in other subjects, the hour-and-a-half paper is the unit in determining failures. A failure in a three-hour paper is reckoned as two failures, unless the examiners recommend otherwise.

5. A student taking one of the special group courses of the Third or Fourth Years in Arts, has his standing for the year determined by the combined results of the December and April examinations (supplemental and regular). He must obtain 40% of the aggregate of the marks allowed for each *major* or *minor* subject, in order to obtain standing in that subject; and as well 40% of the aggregate of the marks allowed for all subjects of his course in order to obtain standing on the course. Having failed to obtain 40% of the aggregate of the marks in any subject, he is required to repeat all the examinations in that subject as supplemental examinations. Having failed to obtain 40% of the aggregate of the marks in all subjects of the course, or having failed to obtain the pass mark in more than three papers, he is required to repeat all the examinations of the year at the regular examinations of a subsequent session. A student who has obtained at least 40% of the aggregate of the marks in all subjects of his course, and, as well, at least 40% of the aggregate of the marks in each subject of his course, and has failures registered against him in not more than three papers of the two examinations, is granted standing but is required to take supplemental examinations in the paper or papers in which he has still failed to secure the pass mark.

6. A student taking any other special course, or the General Course of the Third or Fourth Year, has his standing for the

year determined by the combined results of the December and April Examinations (supplemental and regular). In order to secure a pass he must obtain at least 40% of the aggregate of the marks allowed for all examinations of his course, and may not, at the close of the April examination, have more than three conditions registered against him (a failure on an hour-and-a-half paper operating to create only a half condition).

7. The pass mark in all undergraduate examination papers in Arts is 34%.

8. Students in Engineering and in the First Year in Medicine have their standing for the year determined by the combined results of the December and April examinations. In order to secure a pass they must obtain at least 50% of the aggregate of the marks allowed for all examinations of their course. The conditions under which students will be allowed to proceed with the work of the second term, and the number of failures in individual papers that a student may make and yet be allowed standing on the combined results of the December and April examinations, with the privilege of supplementals, will be determined by the Board of Studies when the number of papers to be set by the examiners is definitely known.

9. Students of the Second, Third, Fourth and Fifth Years in Medicine are examined only in April, and are granted standing provided they have failed in not more than two papers of the examination and have obtained at least 50% of the aggregate of the marks allowed for all papers of the examination, being required to take supplemental examinations in the papers in which they have failed.

10. The pass mark in all undergraduate examination papers in Engineering and Medicine is 50%.

11. Candidates at the examinations in Law have their standing determined by the combined results of the December and April examinations, and are granted standing, provided they have failed in not more than two papers of the examination and have obtained at least 50% of the aggregate of the marks allowed for all papers of the examination, being required to take supplemental examinations in the papers in which they have failed.

12. The pass mark in all undergraduate examination papers in Law is 34%.

13. Candidates at the examinations in Agriculture, which are held only in March, are granted standing, provided they have failed in not more than three papers of the examination and have obtained at least 40% of the aggregate of the marks allowed for all papers of the examination, being required to take supplemental examinations in the papers in which they have failed.

14. The pass mark in all undergraduate examination papers in Agriculture is 40%.

15. The April Supplemental Examinations begin on the second Monday of the month and the September Supplemental Examinations begin on the second Thursday of the month, and run concurrently with the September Matriculation Examinations. For them, as for all other University examinations, application should be made at least thirty days in advance and on blank forms intended for the purpose, to be obtained from the Registrar.

16. The scale of fees for Supplemental Examinations is as follows: One paper, $6.00; one half-paper, $3.00; two papers, $7.00; two half-papers, $3.50; three or more papers, $8.00; three or more half papers, $4.00.

17. In all cases, students who are required to take a Supplemental Examination and who fail to present themselves for the same at the September examination following the regular examination at which the original failure was made, must, when they present themselves for examination at a later date, accommodate themselves to any changes in the curriculum that may have been made in the meantime.

18. A condition in any subject may also be removed by writing upon the paper provided in the subject in question at any regular examination where such paper is examined. In such a case the supplemental examination fee is required from the candidate whether or not he has paid at the same time the regular examination fee. He should also make application therefor on a special form provided for such cases by the Registrar.

19. September Supplemental Examinations are held at the University, and also at such outside centres in Manitoba, Saskatchewan, Alberta and British Columbia as the Board of Studies may from time to time approve.

Conditions of Examination.

1. Candidates for any examination should, at least thirty days before the date of the examination, make suitable application to the Registrar, from whom blank forms of application may be obtained. The required fee must accompany the application.

2. (a) No student in Arts who has registered with an affiliated college shall be entitled to present himself at any regular University examination within the academic year in which he has so registered without the written consent and approval of the head or acting head of the college in which he is registered.

(b) No student in Arts who has registered only in the University shall be entitled to present himself at any regular University examination within the academic year in which he has so registered, without the written consent and approval of the Chairman of the University Faculty.

3. No one shall be permitted to present himself as a non-collegiate student at any University examination in Arts above Matriculation without giving notice to the Registrar, and without receiving permission from the Board of Studies to appear as a non-collegiate student.

4. Every non-collegiate candidate at any examination shall along with his application for examination, forward to the Registrar a certificate from some trustworthy person, that the candidate is of good moral character.

Appeals

1. Any candidate is at liberty to enter an appeal, within three weeks after the publication of the examination results in the public press, against the standing assigned him by the examiners and to request a revision of the marking of one or more of his papers.

2. The fee for such revision is $4.00 for one or two papers, and $2.00 for each additional paper. This fee is payable at

the time the appeal is made, and in case the revision takes place, is not returnable, whether the original marking is sustained or not. When the revision is not granted the fee is returnable.

3. There is no special form of application for such revision.

Conditioned Students

1. Candidates for matriculation into the Faculty of Arts, Law and Engineering who have failed in not more than two papers, or, having failed in three, have at a subsequent supplemental examination, passed in at least one of them,† may, as conditioned students, proceed with their course with the view of subsequently obtaining full undergraduate standing. This regulation is subject to the limitations laid down in 3 below.

2. Candidates with undergraduate standing, who have failed on not more than two papers at the First or the Second Year examinations, or who, having failed on more than two, have at a subsequent supplemental examination, reduced the number of their conditions to two, may as conditioned students proceed with their course with the view of subsequently obtaining full standing in their year. This regulation is subject to the limitations laid down in 3 below.

3. The following limitations are placed on the application of regulations 1 and 2 above:

(a) Matriculation conditions must be removed before the commencement of the Second Year, First Year conditions before the commencement of the Third Year, Second Year conditions before the commencement of the Fourth Year, and Third Year conditions before the commencement of the Fifth Year.

(b) A student who, by virtue of regulations 1 and 2 above, proceeds to any examination with conditions from a previous examination still registered against him, and who at the close of the said examination has more than three conditions against him, while otherwise qualifying for a pass, will not immediately receive standing, but will have the same withheld, until, at a subsequent supplemental examination, he reduces the number of his conditions to such an extent and in such a way as to entitle him to proceed under 3 (a).

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† In applying this rule, a failure in both English History and Canadian History, or in both Algebra and Geometry of Part I. Matriculation, counts as creating but one condition, though a supplemental examination in each paper is required to remove it.

Equivalent Examinations.

1. The following examinations are accepted *pro tanto* by the University, in so far as the subjects and standing are, to the satisfaction of the Board of Studies, the same as, or equivalent to, those required by the University—but candidates offering certificates of having passed such examinations are required to make good their standing by passing in such subject or subjects not covered by their certificates, as may, in the opinion of the Board, be necessary for the completion of the examination for which such certificates are presented:

(a) Third Class Teacher's Examination for Manitoba.

(b) Second and First Class Teacher's Examinations for Manitoba.

(c) Second and First Class Teacher's Examinations for Saskatchewan and Alberta.

(d) Second and First Class Teachers' Examinations and the Junior and Senior Leaving Examinations for Ontario.

2. (a) Third Class Certificates are accepted *pro tanto* for subjects of Part I. of the Matriculation Examination.

(b) Second Class and Junior Leaving Certificates are accepted *pro tanto* for subjects of Parts I. and II. of the Matriculation Examination.

(c) First Class and Senior Leaving Certificates are accepted *pro tanto* for subjects of the First Year in Arts and Part III. of the Engineering Matriculation Examination.

3. Provincial or Departmental Certificates for any other provinces of the Dominion are granted such *pro tanto* standing as the Board of Studies may from time to time recommend.

4. Candidates presenting *pro tanto* certificates must attempt to pass at one time in all the subjects necessary to the completion of the entire examination.

5. Holders of certificates of educational value, other than those above mentioned, receive such recognition as the Board of Studies may from time to time recommend.

6. Students of recognized colleges, who are matriculated in this University, may pursue their course of study in said college and may come up to the University examinations as students of said college.

Admission Ad Eundem Statum and Ad Eundem Gradum

Members of any other University in His Majesty's Dominions, or of any other University accredited by the Unuversity of Manitoba, who may apply for admission to this University, are not required to take the Entrance Examination of the Faculty to which they belong, but may be admitted *ad cundem statum* or *ad cundem gradum*, on presentation of their credentials and payment of hte required fee.

ATTENDANCE ON LECTURES AND PRACTICAL WORK.

No student is allowed to present himself for examination in any subject in which class instruction is given, who does not present from the University Faculty, or from an affiliated college where such work is done in the college, a certificate of having attended 75 per cent. of the lectures delivered in that subject during the term preceding the examinations, in cases where December and April examinations are required, or during the entire session, in cases where April examinations only are required.

This regulation, however, shall not affect any non-collegiate candidates for examination in Arts, excepting in the case of the Special Courses in Natural and Physical Science, and of any other course or subject in which practical or laboratory work is required.

No student is allowed to present himself for examination in the above-mentioned science subjects or in mathematics unless he has satisfactorily carried out and recorded the minimum of practical work in each subject decided upon by the University Faculty, subject to the approval of the Board of Studies; the scheme of practical work to be announced at the beginning of each session. This regulation applies to all classes of students, whether of Arts, Engineering, or Medicine, doing practical work under the direction of the University Faculty.

PRIZES AND SCHOLARSHIPS

The Prizes and Scholarships hereinafter mentioned are provided from the endowment fund presented to the University in accordance with the will of the late Dr. A. K. Isbister.

Matriculation, Part I.

Prizes shall be awarded at the June examinations of each year to pupils of any school, not being an affiliated college, in the Province, as follows:

(a) These prizes, to be called Isbister Prizes, shall be five in number, of the value of $20.00 each, and shall be awarded to the five candidates standing first on the aggregate of the marks of all papers on the fixed subjects of Part I. of the Matriculation Examination in Arts or Law of the University of Manitoba, or on the corresponding subjects of Part I. of the Matriculation in Medicine or Engineering.

One of these prizes shall be awarded to French-speaking students. In the event, however, of no French-speaking student qualifying for a prize, all five prizes may be awarded to English-speaking candidates.

(b) Any successful candidate for one of these prizes must send in to the Registrar of the University a certificate of his having been in attendance at a public or private school, not being an affiliated college, in the Province of Manitoba, for the greater part of the preceding school year.

Scholarships shall be awarded to students of the University as follows:

Matriculation, Part II.

(a) At Part II. of the Matriculation Examination, four scholarships of $60.00 each shall be awarded to the four candidates ranking highest on the Latin and Mathematics papers of the examination

Two scholarships of $40.00 each shall be awarded to the two English-speaking students ranking highest on the English, and one scholarship of $40.00 to the French-speaking student ranking highest on the French papers of his course.

One scholarship of $30.00 shall be awarded to the student ranking highest on the Greek papers of the examination.

One scholarship of $30.00 shall be awarded to the student ranking highest on the French and German papers of the course for English-speaking students of the examination.

First Year, Arts

(b) At the examination of the First Year in Arts, four scholarships of $60.00 each shall be awarded to the four candidates ranking highest on the Latin and Mathematics papers of the examination.

Two scholarships of $40.00 each shall be awarded to the two English-speaking students ranking highest on the papers in English, and one scholarship of $40.00 to the French-speaking student ranking highest on the papers in French of his course at the examination.

One scholarship of $40.00 shall be awarded to the student ranking highest on the Greek papers of the examination.

One scholarship of $40.00 shall be awarded to the student ranking highest on the French papers of the course for English-speaking students of the examination.

One scholarship of $40.00 shall be awarded to the student ranking highest on the German papers of the course for English-speaking students of the examination.

One scholarship of $40.00 shall be awarded to the student ranking highest on the papers on Physics of the examination.

One scholarship of $20.00 shall be awarded to the English-speaking student ranking highest, and one scholarship of $20.00 to the French-speaking student ranking highest on the History paper of the examination.

One scholarship of $20.00 shall be awarded to the student ranking highest on the papers in Icelandic of the examination.

One scholarship of $20.00 shall be awarded to the student ranking highest on the papers in Hebrew of the examination.

Second Year, Arts.

(c) At the examination of the Second Year in Arts, four scholarships of $60.00 each shall be awarded to the four English-speaking students ranking highest on the English, Philosophy, Latin and History papers of the examination, and one scholarship of $60.00 to the French-speaking student ranking highest on the French, Philosophy, Latin, and History papers of the examination.

One scholarship of $40.00 shall be awarded to the student ranking highest on each of the following subjects of the examination:—

Greek, English, French (for English-speaking students), English (for French-speaking students), German, Hebrew, Mathematics, Chemistry, Biology (Botany and Zoology), Geology with Astronomy.

One scholarship of $20.00 shall be awarded to the student ranking highest on the papers in Icelandic.

Third Year, Arts.

(d) At the examination of the Third Year in Arts, one scholarship of $150.00 and one of $100.00 shall be awarded to the students ranking first and second respectively, on the aggregate of the papers in each of the following courses: (1) General Course*; (2) Philosophy (English); (3) Philosophy (Latin); (4) Mathematics.

One scholarship of $100.00 shall be awarded to the student ranking first on the aggregate of the papers in each of the following courses: (1) Natural and Physical Science, Division A; (2) Natural and Physical Science, Division B; (3) Natural and Physical Science, Division C; (4) Natural and Physical Science, Division D; (5) Natural and Physical Science, Division E.

One scholarship of $150.00 and one of $100.00 shall be awarded to the students ranking first and second respectively on the aggregate of the papers in each of the following *major* subjects: (1) Latin; (2) Greek; (3) English; (4) French;

(5) German; (6) History; (7) Political Economy; (8) Hebrew.

Engineering

(e) At the examination of the First Year of the Civil and Electrical Engineering Course (common), a scholarship of $60.00 shall be awarded to the student ranking first on the aggregate of the marks on all subjects of the examination.

At the examination of the Second Year of the Civil and Electrical Engineering Course (common), a scholarship of $60.00 shall be awarded to the student ranking first on the aggregate of the marks on all subjects of the examination.

At the examination of the Third Year in Civil Engineering, one scholarship of $150.00 and one of $100.00 shall be awarded to the students ranking first and second respectively on the aggregate of the marks on all subjects of the examination.

At the examination of the Third Year in Electrical Engineering, one scholarship of $150.00 and one of $100.00 shall be awarded to the students ranking first and second respectively on the aggregate of the marks on all subjects of the examination.

Law

(f) At the examination of the First Year of the Course in Law, one scholarship of $60.00 shall be awarded to the student ranking first on the aggregate of the marks on all subjects of the examination.

At the examination of the Second Year of the Course in Law, one scholarship of $100.00 and one of $75.00 shall be awarded to the students ranking first and second respectively on the aggregate of the marks on all subjects of the examination.

* In the award of scholarships in the General Course, all five subjects shall be taken into account, according to the following method: The percentage of the highest candidate in each subject shall be raised to 100, and that of each of the other candidates in proportion, and the scholarships awarded on the basis of the totals of these raised percentages.

Medicine.

(g) At the examination of the First Year in Medicine, two scholarships of $80.00 each shall be awarded to the students ranking first and second on the aggregate of the marks on all subjects of the examination.

At the examination of the Second Year in Medicine, two scholarships of $80.00 each shall be awarded to the students ranking first and second on the aggregate of the marks on all subjects of the examination.

At the examination of the Third Year in Medicine, two scholarships of $80.00 each shall be awarded to the students ranking first and second on the aggregate of the marks on all subjects of the examination.

At the examination of the Fourth Year in Medicine, two scholarships of $80.00 each shall be awarded to the students ranking first and second on the aggregate of the marks on all subjects of the examination.

GENERAL CONDITIONS OF ELIGIBILITY TO RECEIVE SCHOLARSHIPS.

(a) A student shall not be qualified to receive a scholarship unless:—

(1) He has obtained first-class standing on the aggregate of the marks in the subject or subjects for which the scholarship is given;

(2) And has passed at the same examination in all the subjects required for the full work of the academic year in which the scholarship is given;

(3) And has removed at the same* examination, or prior to it, any condition that may have been registered against him.

(4) In the case of the scholarships in the subjects Latin, Greek, English, French, German, History and Political Economy of the Third Year in Arts, the student receiving the same must also have gained first class standing in the course he is pursuing for the year.

(b) No student shall hold more than one scholarship. If a student succeeds in otherwise qualifying for more than one scholarship in any year, he will be allowed to receive but one, and his name will be entered upon the list as having qualified for the other, though not entitled to any of the funds; and such other scholarship shall be granted to the one ranking next to him.

(c) A student shall not be qualified to receive an Isbister prize at the examination of Part I. Matriculation unless:—

(1) He has obtained first-class standing on the aggregate of the subjects for which the prize is given;

(2) And has passed at the same examination in all subjects required for the full examination of Part I. Matriculation.

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* In the case of a student writing on a First Year examination while a Matriculation condition still stands against him, "the same examination" is understood to include the June Matriculation examination immediately following the session during which his First Year examination is taken.

CONDITIONS GOVERNING THE PAYMENT OF SCHOLARSHIPS

(a) On certification by the Chancellor and the Registrar or other person authorized by the Council, the several scholarships shall be paid by the Bursar of the University to the Bursar or Treasurer of the College in which the student is enrolled, or, in the case of scholarships in Law or Engineering, or in Arts, where the student is enrolled only in the University and not in any affiliated College, directly to the student himself. Payment is made in moieties on the second Wednesday of December and the second Wednesday of May of the academic year following that in which the scholarship was awarded, except in the following cases:—

The mode of payment of the scholarships awarded at the Second Year Examination in Law, at the Third Year Examinations in Arts and Engineering, and at the Fourth Year Examination in Medicine, shall be as follows: One moiety of the scholarship shall be payable in December of the Final Year and the second moiety on the third Thursday of May of the Final Year; but the latter portion shall not be paid unless the holder of the scholarship obtain first-class standing in his Final Examination.

(b) In the case of students in Arts, Medicine and Engineering, the University requires before payment of the first moiety of the scholarships a certificate from the Head or Acting Head of the College in which the student is enrolled, or from the Chairman of the University Faculty, that the student's attendance has been satisfactory up to the 8th day of December, and before the payment of the second moiety a similar certificate that the student's attendance has been satisfactory from January up to the beginning of May. And it is declared that the attendance at the college or the University to be required of a student shall be *actual attendance for the full term of such college or University session,* except in so far as non-attendance for a limited period by any particular student may be excused by the college or University authorities on the ground of ill-health or other proper reasons.

Should the conditions in this section as to the certification of the attendance of a scholarship-winner not be fulfilled during the year following that in which the scholarship was taken, the scholarship shall automatically be extended for another year.

Should the conditions in this section as to certification of a scholarship not be fulfilled during the two years immediately following the date of the taking of the scholarship, the scholarship shall lapse.

(c) The values stated for the scholarships are the maximum values which the scholarships shall not exceed. If the funds do not allow of the scholarships being of such maximum value, then they shall be proportionately of such value as the funds will allow.

TRAVELLING SCHOLARSHIP

The sum of $600.00 is given annually for the maintenance of a Travelling Scholarship, to be awarded under the following conditions:—

1. The object of the Travelling Scholarship shall be to assist students who have completed their Final Year in the University to pursue the special line of studies which they have selected, at some other University or seat of learning.

2. No student shall hold a Travelling Scholarship for a longer period than two years; and no student who has once held such a scholarship shall be eligible a second time.

3. Those eligible to compete for the scholarship shall be students who have graduated not more than twelve months previously, at the regular spring examination, in one of the special courses in Arts or in the course in Medicine or Engineering.

4. One Travelling Scholarship shall be offered for competition in every alternate year, or oftener if a scholarship be vacant; and the course in which it is offered shall be decided by rotation in the following order:—The special course in Classics, the special course in Mathematics, the special course in Modern Languages, the special course in English Philosophy, the special course in Latin Philosophy, the special courses in Science, the course in Medicine, the courses in Engineering.

The course in which it is proposed to award it shall be announced in the Calendar of the year previous.

5. The scholarship shall be awarded to the student obtaining the highest marks at a special examination in the subjects of the selected course, the date and place of holding which shall be announced in the Calendar of the year previous; provided always that the scholarship shall not be awarded to any student who shall not have (a) obtained first class standing at the special examination, and (b) obtained first class standing and have passed in all subjects of his final examination. If these conditions be not satisfied the scholarship may, if the Board of Studies deem it advisable, be offered under similar conditions in the subjects of the course next in rotation.

6. The place at which the successful student shall pursue his studies shall be selected by the student, subject to the approval of the Board of Studies.

7. The scholarship shall be of the yearly value of $600.00, and the amount shall be paid each year in two moieties; provided that the second moiety in each year shall not be paid until the student shall have spent at least three months in studying at the institution selected, and shall have produced a certificate from the authorities of the institution of his having made satisfactory progress.

The special Travelling Scholarship Examination shall be held each year in June, beginning on the opening day of the Matriculation Examination. Applications for this examination shall be forwarded to the Registrar thirty days in advance.

1915.

The scholarship will be awarded in this year in the Department of English Philosophy.

THE RHODES' SCHOLARSHIP.

By the will of the late Mr. Cecil Rhodes, a scholarship of the value of £300 yearly, tenable at any college in the University of Oxford for three consecutive academical years, has been allotted to the Province of Manitoba. Nominations to the scholarship are made by a committee of five, named by the Council of the University of Manitoba at its regular October meeting.

In order to be eligible for nomination to this scholarship, candidates—

(a) Must be British subjects, with at least five years' domicile in Canada, and unmarried.

(b) Must have spent four years in Manitoba educational institutions, two at least of which must have been as registered undergraduates of the University of Manitoba.

(c) Must have passed their nineteenth, but not have passed their twenty-fifth birthday, on October 1st of the year for which they are elected.

The University of Manitoba has been admitted by the University of Oxford to the privileges of the Statute on Colonial and Indian Universities. This statute relieves its students of a certain standing from the requirements of Responsions (the first public examination exacted by the University of Oxford from each candidate for a degree), providing a sufficient knowledge of the Greek language has been shown. It also admits to Junior or Senior status, as follows:—

(a) Any member of a University so admitted, who shall have pursued a course of study prescribed by it and extending over two years, and who shall have passed all the examinations incident to the course, may be admitted to the status and privileges of a Junior Colonial or Indian Student.

(b) Any member of a University so admitted, who shall have pursued a course of study prescribed by it and extending over three full years, and who shall have taken Honours in the final examination incident to the course, may be admitted to the status and privileges of a Senior Colonial or Indian Student.

Candidates for the scholarship, therefore, who have satisfied the condition of eligibility which requires a record of at least two years of undergraduate work in the University of Manitoba, are relieved of the necessity of passing a preliminary or qualifying examination, provided they hold standing in Greek equivalent at least to that of the Second Year in Arts.

If the University of Manitoba did not enjoy this privilege under the Statute on Colonial and Indian Universities, or if the two years of undergraduate work of the prospective candidate were not sufficient to relieve him from Responsions, a qualifying examination would be held prior to the election.

This examination is not competitive, but is intended to give assurance that all candidates are fully qualified to enter on a course of study at Oxford University. It is therefore based on the requirements for Responsions. Rhodes scholars may be selected from candidates who have successfully passed this preliminary examination.

Candidates must offer the following:—

(1) Arithmetic—the whole.

(2) Either Algebra—

Addition, Subtraction, Multiplication, Division, Greatest Common Measure, Least Common Multiple, Fractions, Extraction of Square Root, Simple Equations containing one or two unknown quantities, and problems producing such equations.

Or, the Elements of Geometry—

Elementary Questions, including propositions enunciated by Euclid, and easy deductions therefrom, will be set on the subject-matter contained in the following portions of Euclid's Elements, viz.:—

Book I.—The whole, excluding propositions 7, 16, 17, 21.

Book II.—The whole, excluding proposition 8.

Book III.—The whole, excluding propositions 2, 4 to 10, 13, 23, 24, 26 to 29.

Any method of proof will be accepted which shows clearness and accuracy in geometrical reasoning. So far as possible, candidates should aim at making the proof of any proposition complete in itself. In the case of propositions 1 to 7, 9, 10 of Book II., algebraical proofs will be allowed.

(3) Greek and Latin Grammar.

(4) Translation from English into Latin prose.

(5) Greek and Latin Authors.

Candidates must offer two books, one Greek and one Latin or Unseen Translation. The following portions of the undermentioned authors will be accepted:—

Demosthenes—De Corona.

Euripides—Any two of the following plays: Hecuba, Medea, Alcestis, Bacchae.

Homer—(1) Iliad 1—5, or 2—6; or (2) Odyssey 1—5, or 2—6.

Plato—Apology and Crito.

Sophocles—Antigone and Ajax.

Xenophon—Anabasis 1—4, or 2—5.

Caesar—De Bello Gallico, 1—4.

Cicero—(1) the first two Phillippic Orations; or (2) the first three Catiline Orations, and In Verrem, Act I.; or (3) the Orations, Pro Murena and Pro Lege Manilia; or (4) the treatises, De Senectute and De Amicitia.

Horace—(1) Odes 1—4; or (2) Satires; or (3) Epistles.

Livy—Books V. and VI.

Vergil—(1) the Bucolics, with Books 1—3 of the Æneid; or (2) the Georgics; or (3) the Æneid, Books 1—5, or 2—6.

The texts used in setting the examination papers will be those of the Series of Oxford Classical Texts, so far as these have been published by the Oxford University Press.

Papers covering this range of study will be prepared by examiners appointed by the Trustees, and will be sent to each centre, where required, and at a date publicly announced, the examination will be held under proper supervision, and the papers returned to the examiners. A list of those who have successfully passed this test will, as soon as possible, be furnished the Committee of Selection, and from this list, and a list of other eligible candidates, the Committee will proceed to elect the scholar.

Candidates for the scholarship should, during the month of December, notify the Secretary of the Committee of Selection of their intention of becoming such candidates, forwarding at the same time a detailed statement of their record, proof of all matters necessary to establish their eligibility, and a list of references with whom the Committee of Selection may communicate respecting their fitness for appointment. The decision of the Committee of Selection is final.

The following extract from the will of the late Right Hon. Cecil John Rhodes serves to indicate some of the considerations taken into account in elections to this scholarship:

> "My desire being that the students who shall be elected to the scholarships shall not be merely bookworms, I direct that in the election of a student to a scholarship regard shall be had to (1) his literary and scholastic attainments; (2) his fondness of and success in manly outdoor sports, such as cricket, football and the like; (3) his qualities of manhood, truth, courage, devotion to duty, sympathy for and protection of the weak, kindliness, unselfishness and fellowship; and (4) his exhibition during school days of moral force of character and of instincts to lead and to take an interest in his schoolmates; for those latter attributes will be likely in after life to guide him to esteem the performance of public duties as his highest aim. As mere suggestions for the guidance of those who will have the choice of students for the scholarships, I record that (1) my ideal qualified student would combine these four qualifications in the proportions of three-tenths for the first, two-tenths for the second, three-tenths for the third, and two-tenths for the fourth qualifications, so that according to my ideas, if the maximum number of marks for any scholarship were 200, they would be apportioned as follows: 60 to each of the first and third qualifications and 40 to each of the second and fourth qualifications; (2) the marks of the several qualifications would be awarded independently as follows (that is to say) the marks for the first qualification by examination, for the second and third qualification respectively by ballot by the fellow-students of the candidates, and for the fourth qualification by the head master of the candidate's school; and (3) the results of the awards (that is to say, the marks obtained by each candidate for each qualification) would be sent as soon as possible for consideration to the trustees or to some person or persons appointed to receive the same, and the person or persons so appointed would ascertain by averaging the marks in blocks of 20 marks each of all candidates the best ideal qualified students."

No student shall be qualified or disqualified for election to scholarship on account of his race or religious opinions.

The Committee of Selection is asked to furnish to the Trustees as full a statement as possible of the school and college career of each elected scholar, with the special grounds of his appointment, together with suggestions, if desired, as to the course of study for which he is best fitted.

A qualified student who has been elected as aforesaid shall within six calendar months after his election, or as soon thereafter as he can be admitted into residence, or within such extended time as the Trustees shall allow, commence residence as an undergraduate at some college in the University of Oxford. The scholarship is payable to him from the time when he commences such residence.

Any inquiries about Oxford, its colleges and the courses of study there, should be addressed to F. J. Wylie, Esq., the Oxford agent of the Rhodes Trustees.

Copies of Oxford Responsion papers for past years can be obtained from the Copp, Clark Company, Toronto. The Student's Handbook of Oxford can be ordered at the same address. It gives full information about the examinations of the University, subject to changes made since the last edition was issued. "Oxford As It Is," a small pamphlet prepared by Mr. Louis Dyer, of Harvard and Balliol Colleges, for the use of American candidates, gives all essential information in a condensed form. It can also be ordered from the Copp, Clark Company, Toronto. "Oxford and Its Colleges," written by Mr. J. Wells, of Wadham College, and "Oxford and Oxford Life," edited by the same gentleman, may be recommended to those who wish to gain full information about the University and its Colleges.

SPECIAL PRIZES.

CANADIAN HISTORY PRIZES.

(a) Two prizes of $20.00 each are awarded to the two candidates ranking highest on the paper in Canadian History of the Part I. Matriculation examination (any faculty), in June of each year. These prizes are the gift of the Canadian Club of the City of Winnipeg.

(b) Two class prizes of the value of $20.00 each, taking the form of pictures or other works of art, commemorative of Canadian history, are also offered by the Winnipeg Canadian Club to the two classes taking the highest average standing in Canadian History at the aforesaid examination. The average mark in Canadian History of *all* the pupils of a class, who write on the examination determines the standing of the class in the competition. No class is considered eligible to compete unless six or more of its pupils write on Canadian History.

N.B.—Similar individual and class prizes are offered by the Winnipeg Canadian Club for competition at the examinations of the Manitoba Department of Education. No pupil is eligible to compete, either individually or as a member of a class, at both Matriculation and Departmental Examinations in the same year.

PRIZES IN MEDICINE.

Two microscopes, the gift of Dr. H. H. Chown, Dean of Manitoba Medical College, are awarded each year to the two students of the Fifth Year in Medicine who have obtained the highest standing on the aggregate marks of the fine annual examinations of their course.

Dr. E. L. Pope, Medical Registrar, and Dr. R. B. Mitchell, Surgical Registrar, give a prize to the student of the Fifth Year presenting the best medical case report and the best surgical case report, respectively, based on their hospital work.

MEDALS.

(a) The Governor-General's Medals.

The Governor-General's *Silver and Bronze Medals,* the gift of His Royal Highness the Governor-General, are awarded to the students ranking first and second respectively in first-class standing at the final examination of the different courses in Arts in rotation, and take the place for the year of the University Gold Medal in the course in which they are awarded.

In 1914 the Governor-General's Medals will be awarded in the Philosophy (English) Course.

(b) University Medals.

A *Gold Medal* is awarded annually to the student standing first in order of merit at the final examination of the following courses or subjects in Arts, providing his standing on the aggregate of the marks be 80% or above: *General Course; Philosophy (English); Philosophy (Latin); Mathematics; Natural and Physical Science; Greek major; Latin major; Hebrew major; English major; French major; German major; History major; Political Economy major.

A *Gold Medal* is awarded annually to the student standing first in order of merit at the final examination in Civil Engineering and in Electrical Engineering, providing his standing on the aggregate of the marks be 80% or above.

A *Gold Medal* is awarded annually to the student standing first in order of merit in the final examination of the course in Medicine, providing his standing on the aggregate of the marks be 80% or above.

(c) Special Medals

A *Gold Medal*, presented by Mr. J. L. Doupe, is awarded annually to the student obtaining the highest first-class standing on the Third and Fourth Year Examinations of the course in Civil Engineering.

A *Gold Medal*, presented by Dr. J. N. Hutchison, is awarded annually to the student obtaining the highest first-class standing on the aggregate marks of the full course in Medicine.

DEGREES IN ABSENTIA.

No degree will be conferred *in absentia* except where good reasons for absence have been submitted to, and approved by the Board of Studies, or the Council, and an additional fee of ten dollars may be exacted in each case where permission is granted.

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* In the award of the medal in the General Course, all five subjects shall be taken into account, according to the following method: The percentage of the highest candidate in each subject shall be raised to 100, and that of each of the other candidates in proportion, and the medal awarded on the basis of these raised percentages.

GRADING OF DEGREES.

All degree diplomas granted by the University are graded as follows: *rite,* indicating standing between the pass mark and 66% inclusive; *cum laude,* indicating standing between 67% and 79% inclusive; *magna cum laude,* indicating standing of 80% and above.

No undergraduate student shall present himself at any University Examination, or at any meeting of the University, unless he be clothed in the academic dress peculiar to his college.

UNIVERSITY DRESS.

The materials and colors prescribed by the Council for the hoods to be worn by graduates of the University in Arts are as follows:

B.A.—Black stuff, edged with white rabbit-skin, with a braid of green silk.

M.A.—Black corded silk, lined with scarlet corded silk.

M.D.—Black cashmere, lined with purple corded silk.

M.D., C.M.—Black cashmere, lined with purple corded silk and edged with violet silk.

LL.B.—Black silk stuff, lined with white silk, edged with narrow white rabbit skin, and narrow green silk braid along the border.

B.S.A.—Black, lined with green, and edged with white rabbit-skin.

Phm.B.—Black, lined with light blue and edged with white rabbit-skin.

B.C.E.– Black, lined with yellow and edged with white rabbit-skin.

M.C.E.—Black, lined with yellow.

B.E.E.—Black, lined with yellow and edged with white rabbit-skin.

M.E.E.—Black, lined with yellow.

LL.D.—Scarlet cloth lined with white moiré silk.

FEES.

The following fees are required and must be paid to the Registrar of the University in advance. Tuition fees are payable at the time of registration, examination fees at the time of application, degree fees at the time of application for final examination. The fees for admission *ad eundem statum* or *ad eundem gradum* are payable at the time application therefor is made; the fee for the M.A. degree at the time the candidate's thesis is submitted.

Matriculation Examinations.

For Registration (payable the first time a candidate takes an examination of the University of Manitoba)	$ 2 00
For Matriculation (Part I.)	3 00
For Matriculation (Part II.)	4 00
For Matriculation (Parts I. and II.)	6 00
For Matriculation by subjects, each subject	$ 2 00
For Part I. Matriculation Supplemental Examination—	
One subject	$ 2 00
Two or more subjects	3 00
For Part II. Matriculation Supplemental Examination—	
One subject	$ 6 00
Two subjects	7 00
Three subjects	8 00

Examinations above Matriculation

For Registration (payable the first time a candidate takes an examination of the University of Manitoba)	$ 2 00
For each Regular Examination	8 00
For each Supplemental Examination—	
One subject	$ 6 00
Two subjects	7 00
Three subjects	8 00

Tuition.

For Students of Courses in Natural and Physical Science	$45 00
For Students of any other course in which all the instruction is given by the University Faculty	36 00
For Students in other courses taking University lectures, each subject	8 00
For Students in other courses taking University lectures, each subject with practical work	10 00
Foor Extension Course in English Literature, Political Economy, or Nature Study	5 00
For Engineering Students—	
First Year	$55 00
Second Year	65 00
Third Year	80 00
Fourth Year	80 00

(The tuition fee of each special student is determined by the Registrar, after consultation with the Professor in whose department the student receives instruction.)

Degrees.

For the Degree of B.A.	$10 00
For the Degree of M.A. (Examination of Thesis, $10.00; Degree, $10.00)	20 00
For the Degree of LL.B.	10 00
For the Degree of Phm.B.	10 00
For the Degree of M.D.	10 00
For the Degree of C.M.	15 00
Examination for License to Practise Medicine	15 00
For the Degree of B.C.E.	10 00
For the Degree of B.E.E.	10 00
For the Degree of M.C.E.	20 00
For the Degree of M.E.E.	20 00
For the Degree of B.S.A.	10 00
For the conferring of any Degree *in absentia* (for which the consent of the Board of Studies or the University Council must be secured), an additional fee of	10 00
For admission *ad eundem statum*	5 00
For admission *ad eundem gradum*	10 00

Appeals.

For the re-reading of one or two papers	$ 4 00
Each additional paper	2 00

Special.

For a Certificate of Standing	$ 2 00
For a Statement of Marks, on request	1 00
For a Complete Bound Set of Examination Papers	50

Caution Money.

Students in the special courses in Mathematics and Natural and Physical Science, and all others taking practical or laboratory classes in the University, are required to deposit with the Registrar at the beginning of each session the sum of $5.00. Against this will be assessed the value of all apparatus broken or materials wasted in any way other than in the legitimate course of class work, and the balance will be refunded at the close of the term.

Appendices

Appendix I.

UNIVERSITY SOCIETIES

THE STUDENTS' REPRESENTATIVE COUNCIL.

Instituted January, 1907.

The Students' Representative Council is composed of five representatives from each of the affiliated Colleges and the University.

These are elected in October of each year. The purpose of the Council is to act as a medium of communication between the students of the University and the University authorities, or between the students and the public at large, to deal with matters affecting the students of the University in general, to promote university spirit among the students, and to act as a court of appeal in matters of dispute among student organisations where the interests of the student body at large are involved.

Each college represented contributes $10.00 yearly to the funds of the Council.

THE STUDENTS' UNION.

Instituted November, 1907.

The objects of the Union are to bring together undergraduates, graduates and members of the staff of the University, to deal with all matters affecting University students, to promote university spirit, and, by special committees, to take charge of athletics and social functions. All undergraduates who take all or the majority of their lectures at the University, and any other undergraduates who may wish to identify themselves with the organization as University students, are eligible for membership. Membership is also open to all graduates of the University and to members of the teaching staff. The annual membership fee of 25c is paid to the Registrar at the time of enrollment.

THE SCIENTIFIC SOCIETY.

Instituted February, 1906.

The Scientific Society has for its aim the stimulation of interest in scientific subjects, especially among the students. This is attained chiefly by lectures and discussions. All students and members of the staff are eligible for membership. The annual membership fee is 50c. The Society meets on alternate Thursdays at 3 o'clock p.m. throughout the session.

The officers for 1912-1913 were: *Honorary President,* Dr. H. P. Armes; *President,* A. A. Chapman; *Vice-President,* W. Richardson; *Secretary,* O. T. Anderson; *Treasurer,* J. G. Johannsson, B.A.

The officers for 1913-1914 are: *Honorary President,* Assistant Professor A. T. Cameron; *President,* A. Hogg; *Vice-President,* K. J. Austmann; *Secretary,* G. Hanson; *Treasurer,* Professor M. A. Parker; *Committee,* W. H. Richardson, G. H. Lee, S. G. Churchward.

THE ENGINEERING SOCIETY.

Instituted November, 1910.

The objects of the Engineering Society have been from its inauguration the promotion of increased interest in Engineering Science among the undergraduates of the University, and the formation of a bond of union among the graduates, the undergraduates and practising engineers and surveyors residing in the Province of Manitoba. To these have recently been added the control of athletics and social functions for engineering students. Two meetings are held in each month from November to March, inclusive. The first meeting is devoted to a lecture or paper given by some prominent engineer, while the second is conducted entirely by the students. The annual membership fee of $5.00 is paid to the Registrar at the time of enrollment.

A supply department in connection with the Society furnishes students with drawing materials at reduced cost.

The following were the officers for 1912-1913: *Honorary President,* Sir Rodmond P. Roblin; *President,* Professor E.

P. Fetherstonhaugh; *First Vice-President,* A. Auger; *Second Vice-President,* D. M. Mawhinney; *Secretary,* J. P. Fraser; *Treasurer,* H. R. Urie; *Librarian,* E. A. Childerhose.

The officers for 1913-1914 are: *Honorary President,* Dr. James A. MacLean; *President,* Professor Brydone-Jack; *First Vice-President,* W. S. Collins; *Second Vice-President,* W. G. Mawhinney; *Secretary,* P. F. Seale; *Treasurer,* J. P. Fraser; *Librarian,* E. A. Childerhose.

THE GERMAN SOCIETY.

Instituted October, 1910.

The object of the German Society is the promotion of interest in German literature, art and music. Its meetings are held fortnightly in the University, on Wednesday evenings at 8.30 o'clock. They take the form of lectures, papers, debates and conversation in the German language. Musical evenings are held at intervals during the session. The annual membership fee is $3.00. Membership is open to students and members of the staff of instruction of the University and affiliated Colleges, and others who can converse in the German language.

The officers for 1912-1913 were: *Honorary President,* Hon. William Hespeler; *Honorary Vice-President,* Professor A. H. R. Buller; *President,* Dr. J. E. Lehmann; *Vice-President,* Dr. H. P. Armes; *Honorary Secretaries,* Miss Carroll, Mrs. Povah; *Honorary Treasurer,* Miss A. L. Brunstermann

The officers for 1913-1914 are: *Honorary President,* Hon. William Hespeler; *President,* Dr. H. P. Armes; *Vice-President,* Mrs. Weiss; *Honorary Secretaries,* Mrs. Povah and Mr. Merrill; *Honorary Treasurer,* Mrs. A. M. Campbell.

OTHER SOCIETIES MEETING IN THE UNIVERSITY

THE SCIENTIFIC CLUB OF WINNIPEG.

Founded 1905.

The purpose of the Scientific Club is to discuss new and current scientific questions, and thereby to stimulate original research on the part of the members. Members are expected to contribute to the proceedings. The original membership was six. The present membership is limited to forty-five, and there were during the winter of 1912-1913 forty-three on the roll. All those who have contributed to or are interested in scientific research may apply for membership. The names of candidates for membership, after approval by the committee, are submitted to the members of the club for election. The club meets in the University on alternate Tuesdays throughout the winter at 8.15 p.m. The annual membership fee is $4.00.

The officers of the Club for 1912-1913 were: *Honorary Treasurer,* Professor Parker; *Honorary Secretaries,* Professor Vincent, A. T. Cameron; *Committee,* Principal Bletcher, Professor Evatt, R. T. Hodgson, Dr. Leeming, Dr. McClung, Dr. Torrance.

The officers of the Club for 1913-1914 are: *Honorary Treasurer,* Professor Parker; *Honorary Secretaries,* Professor Vincent, A. T. Cameron; *Committee,* Professor Evatt, R. T. Hodgson, Dr. Lehmann, Dr. McClung, Dr. Prowse, Dr. Wallace.

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA: WINNIPEG CENTRE.

In September, 1909, the Astronomical Association of Western Canada was formed at the University. The aim was to enable all those interested in Astronomy to obtain an elementary knowledge of the subject, and to give those with a preliminary acquaintance an opportunity of pursuing some more advanced work.

In December, 1910, the Astronomical Association was incorporated into the Royal Astronomical Society of Canada, and Winnipeg was made a local centre of that organization. The

Society holds two meetings each month from October to May, inclusive, in the University Building.

The officers for 1913-1914 are: *President*, Assistant Professor Warren; *Vice-President*, H. C. Howard; *Secretary-Treasurer*, C. E. Bastin, B.A.; *Council*, Rev. J. Blain, S.J., Professor MacLean, F. Powell, H. W. Malpass, J. H. Kolb.

CHARTERED ACCOUNTANT STUDENTS' SOCIETY.

Organized 1906.

This Society is an organization of students of Accountancy in all its branches, and was formed in order to assist in the preparation of its members for the examination of the Manitoba Institute of Chartered Accountants. A series of lectures is provided by the Institute, covering the subjects of Book-keeping, Higher Accountancy and Commercial Law. These are given in the University on one evening per week from November to April, inclusive. The annual membership fee is $5.00.

The Secretary of the Society during 1913-1914 is William Gray, C.A., 502 Trust and Loan Building, Winnipeg.

WINNIPEG INTERNATIONAL ACADEMIC COMMITTEE

This Committee, which is affiliated to the International Academic Committee of the Students' Representative Committee of Edinburgh University (a Committee representing all the Universities represented at the British Universities' Students' Congress), has for one of its principal objects the encouragement of graduates of this University to continue post-graduate study abroad, and to give them all possible information and assistance, through letters of introduction and similar means. For this purpose the Committee has received the recognition of the Council of the University of Manitoba.

The Committee consists of the following:—

Chairman, Dr. Blanchard, 288 Broadway, Winnipeg.

Secretary, A. T. Cameron, Esq., Department of Physiology, University of Manitoba.

A. B. Alexander, Esq., Rev. Professor Baird, Professor A. B. Clark, R. A. Cunningham, Esq., Rev. Dr. Johnstone, Dr.

Prowse, and Professor Vincent (representing the various branches, Divinity, Arts, Science, Law, Medicine, Agriculture).

Graduates and students of the University desiring information in connection with post-graduate courses, facilities for study, etc., at other universities, are requested in the first instance to communicate with the Secretary.

Appendix II.

REGULATIONS OF THE COLLEGE OF PHYSICIANS AND SURGEONS OF MANITOBA

REGULATIONS REGARDING LICENSE TO PRACTICE MEDICINE IN MANITOBA.

The College of Physicians and Surgeons, which is composed of all the medical practitioners whose names are duly entered on the Manitoba Medical Register, is neither a teaching nor an examining body, but is the sole licensing body in medicine in the Province. The University of Manitoba is the sole examining body.

If the applicant for license be a graduate in medicine of the University of Manitoba a license to practice in the Province is granted wthout further examination by paying the license fee of $125.

If the applicant for license be a graduate in medicine of any other Canadian University, he must send to the Registrar of the College of Physicians and Surgeons, prior to the 1st of March, his medical degree (as a credential), and upon this being found satisfactory he shall be reported to the University as eligible to write at the regular examination, which is held once a year, beginning on the third Monday in April.

In the case of a graduate from any University in the United States or other foreign country, he shall, in addition to sending his degree (or diploma), be required to send complete detailed and authoritative information as follows:

First.—As to his matriculation; giving the name and address of the institution in which he was examined, the subjects, and the extent of each required.

Second.—As to medical course; the number and length of sessions, subjects taught, number of courses in each, and number of lectures in each course, amount of clinical instruction in the different courses, etc., etc.

All candidates writing for license must show that the course of studies of such college or other incorporated body, at the time such member was admitted thereto, was at least equivalent to the requirements for a similar course by the University of Manitoba at the time such member shall seek to be registered as aforesaid.

On receipt of this information the College of Physicians and Surgeons will decide as to the eligibility or otherwise of the applicant to write for license.

Each applicant, at the same time that he sends his credentials to the Registrar of the College of Physicians and Surgeons, should send $15, examination fee, in a separate communication addressed to the Registrar of the University, which will be returned to him in case he is not permitted to write.

A candidate failing in three or more subjects must write on the whole examination again, and can only do so at a subsequent regular spring examination. If he fail in two subjects, or less, he will be required to write on these only, and may do so at the time of the Supplemental Examinations, which begin on the second Thursday in September, or at any subsequent regular examination.

The subjects of examination for license are: Medicine, Surgery, Obstetrics, Diseases of Children, Gynæcology, Therapeutics, Clinical Medicine, Clinical Surgery, Clinical Ophthalmology and Otology. 50% is required in each to pass.

The fee for license, $125.00, is payable to the Registrar of the College of Physicians and Surgeons immediately after the receipt by him from the University of a satisfactory report of the candidate's examination.

No interim permit to practice is granted.

Licentiates in Great Britain, in good standing, may register in Manitoba on presenting the British certificate of registration and evidence that they have obtained this standing by examination, and on paying the registration fee, $125.00.

J. S. GRAY, M.D., Registrar,
College of Physicians and Surgeons of Manitoba,
358 Hargrave Street, Winnipeg.

Appendix III.

THE UNIVERSITY LIBRARY

Mrs. W. H. Thompson, Librarian.

The Library occupies what was until recently the Council Chamber of the University, and contains upwards of 11,000 books, and numerous pamphlets and reports. The nucleus of this collection was that portion of the Isbister library which escaped destruction by fire, but the greater part of it has been acquired during the past five years by purchase or by gift.

Among noteworthy donors are Sir Lauder Brunton, who gave 600 volumes from his private library; the Royal Society of Medicine; Professor Crawford; the Royal Society of London, who gave a number of volumes which almost complete a set of the Proceedings of the Royal Society; His Majesty's Government, who gave a large number of the Geological Survey Memoirs of Great Britain; the British Association for the Advancement of Science, who presented 721 books and 150 pamphlets to commemorate their visit to Winnipeg in 1909. Six hundred and ninety volumes belonging to the library of the late Professor Cochrane have also been secured.

The Library subscribes to the Champlain Society.

One hundred and ninety-nine journals and periodicals are received in the Library, of which twenty-two are presented or taken privately by members of the staff.

The complete list is as follows:—

American Chemical Journal.
" Economic Review.
" Historical Review.
" Journal of Anatomy.
" Journal of Archaeology.
" Journal of Mathematics.
" Journal of Science.
" Museum Journal.
" Naturalist.
Anatomischer Anzeiger.
Anglia.
Annalen der Physik.
Annales de Chémie et de Physique.
Annals of Botany.
" " Mathematics.
Applied Science.
Archives Italiennes de Biologie.
Archiv fur mikroskopische Anatomie.
Astrophysical Journal.
Athenaeum.
Atlantic Monthly.

Banker's Magazine (American).
" " (English).
Beiblatt zur Anglia.
Beiblatter z. d. Annalen d. Physik.
Berichte der deutschen botanischen Gesellschaft.
Berichte der deutschen chemischen Gesellschaft.
Biblical World.
Biometrika.
Bookman.
Botanical Gazette.
Botanisches Centralblatt.
Botanische Zeitung.
Brain.
Brandon Sun.
British Medical Journal.
Bulletin of the Bureau of Standards.
" " American Geological Society.
" " American Mathematical Society.
" " Archaeological Institute of America.
Bulletin de la Société Chimique de France.

Canadian Courier.
" Engineer.
" Journal of Forestry.
" Magazine.
" Railway and Marine World.
" Mining Journal.
" Municipal Journal.
Cassier's Magazine.
Centralblatt fur Mineralogie.
Chemical News.
Comptes rendus de l'academie des Sciences.
Chemisches Centralblatt.
Classical Journal.
Comptes rendus de la Société de Biologie.
Concrete and Constructional Engineering.
Contract Record.
Cornell Civil Engineer.

Data.
Dial.

Economist.
Economic Geology.
Educational Review.
Electric Journal.
" Railway Journal.
Electrical News.
" Review.
" World.
Electrician.
Engineer.
Engineering.
Engineering and Contracting.
" Magazine.
" News.
" Record.
Englische Studien.
Eugenics Review.
English Historical Review.
Farmer's Advocate.

Free Press.
Fortnightly Review.

General Electric Review.
Génie Civile.
Geographical Journal.
Geological Magazine.
Grain Growers' Guide.

Historische Zeitschrift.

Il Nuovo Cimento.
Industrial Engineering.
Illuminating Engineer.
International Journal of Ethics.

Jahrbuch fur Nationalökonomie.
Jahrbucher fur Wissenschaftliche Botanik.
Journal of the Association of Engineering Societies.
" Chemical Industry.
" Chemical Society.
" Biological Chemistry.
" des Economistes.
" of English and Germanic Philology.
" Geology.
" Industrial and Engineering Chemistry
" Institute of Actuaries.
" Institute of Bankers.
" Institution of Electrical Engineers.
" de Mathématiques pures et appliques.
" of Medical Research.
" the New England Waterworks Assoc.
" Physical Chemistry.
" Physiology.
" de Physiologie et de Pathologie Generale
" Physique.
" fur d. reine u. angewandte Mathematik.
" of Political Economy.
" the Royal Astronomical Soc. of Canada.
" the Royal Institute of British Architects
" the Western Society of Engineers.
Justus Liebig's Annalen der Chemie.
Just's Botanischen Jahresbericht.

Lancet.

Manitoba Engineer.
Marine Engineer.
Mathematische Annalen.
Mathematical Gazette.
Mathesis.
Messenger of Mathematics.
Mind.
Modern Language Notes.
Modern Language Review.
Modern Philology.
Monthly Notices of the Royal Astronomical Society.

Nature.
Neues Jahrbuch fur Mineralogie.
Notes and Queries.
Nouvelles Annales de Mathématiques.
Nineteenth Century and After.

Observatory.

Pfluger's Archiv.
Philosophical Magazine.
Philosophical Transactions of the Royal Society, Series A. and B.
Physical Review.
" Society of London, Proceedings.
Physikalische Zeitschrift.
Poet Lore.
Political Science Quarterly.
Polytechnic.
Popular Astronomy.
" Science Monthly.
Proceedings of the—
  American Institute of Electrical Engineers.
  American Chemical Society.
  London Mathematical Society.
  Engineers' Society of Western Pennsylvania.
  Royal Society, Series A and B.
  Royal Society of Edinburgh.
  Zoological Society, London.
Progressus rei botanicae.
Public Health Journal.

Quarterly Journal of—
  Economics.
  Experimental Physiology.
  The Geological Society.
  Mathematics.
  Microscopical Science.
  The Royal Meteorological Society.
Quarterly Review.

Le Radium.
Railway Age Gazette.
Review of Applied Entomology, Series A. and B.

Revue des Deux Mondes.
" d'Economie Politique.
" Historique.
" des Questions Historiques.
Round Table.

Saturday Review.
Science.
Spectator.
Science Abstracts.
Studio.
Surveyor.

Telegram.
Telephone Engineer.
Times, Weekly Edition, Literary Supplement.
Transactions of the—
  American Mathematical Society.
  Zoological Society, London.
  Institute of Electrical Engineers.
Tribune.
Tschermaks Mineral und Petrog. Mitteilung.

United Empire.
University Magazine.

Yale Review.

Zeitschrift f. Biologie.
" Botanik.
" Pflanzenkrankheiten
" Physikalische Chemie.
" Instrumentenkunde.
" Krystallographie und Mineralogie.
" Physiologische Chemie.
Zentralblatt f. nor. Anatomie u. Mikrotechnik.
" Physiologie.
" Physiol. u. Pathol. des Stoffwechsels.

The Library may be used by members of the University Council, the teaching staff of the University, the teaching staff of the affiliated Colleges, students registered at the University, and by other persons receiving special permission from the Librarian.

Appendix IV.

DEGREES GRANTED IN 1912-1913

June 6th, 1912.

B.Sc. Ad Eundem Gradum

Paddock, Edna L., University of Michigan.

October 3rd, 1912.

B.A.

Eaton, Harris

Naismith, William

B.A. Ad Eundem Gradum

Gorsky, Walter, University of Odessa.

Martel, Christian, University of Paris.

M.D.

Jackson, Frederick Wilbur

LL.B.

McVicar, John Archibald

Wallar, John Franklin

December 12th, 1912.

B.A.

Kane, Paul

Kerr, John Lindsay

B.A. Ad Eundem Gradum

Bell, Leslie Gordon, University of Michigan.

Belyea, George N., University of New Brunswick.

Brydone-Jack, Ernest E., University of New Brunswick.

Davis, Eugene Charles, University of Toronto.

Dawson, Eric Powell, Yale University.

January 8th, 1913.

B.A.

Gelley, George Maurice
Gauthier, Henri

February 13th, 1913.

B.A.

Beliveau, Arthur
Dolmage, Victor

April 3rd, 1913.

B.S.A. Ad Eundem Gradum

Abel, Peter Macdonald, Manitoba Agricultural College.

Gordon, Kenneth Wathen, Manitoba Agricultural College.

Smith, John MacGregor, Manitoba Agricultural College.

May 15th, 1913.

LL.D. (Honoris Causa)

Cherrier, Rev. Alphonse Avila, B.S. (Laval), for thirty-one years Chairman of the Board of Studies of the University of Manitoba.

Wesbrook, Frank Fairchild, M.A., M.D., C.M. (Manitoba), President-elect of the University of British Columbia.

B.A.

Anderson, Olafur T.
Arnason, Jon
Ball, Frederick Blatchford
Beauchamp, Christine Margaret
Bergmann, Magnea Gudrun
Black, George Patton
Bleau, Joseph Aime Marius
Bonneau, Solomon Marcien
Bowman, Harry Isaac
Bridgman, Bidwell Wesley
Broad, Lloyd Llewellyn

Burns, Charles William
Bushe, William Feltrim
Cameron, Catherine Jane
Campbell, Neil Stanley
Chapman, Arthur Armstrong
Cleave, William Thomas
Clendenan, Mary Marguerite
Crookshanks, Olive Evelyn
Crummy, Richard
Crummy, William Taylor
Cunningham, Olive Isabel
Ducker, Stella May
English, Harry Oswald
Erickson, John
Frith, Lawrence Edward Cokayne
Garrow, William Murison
Garton, Maris Henry
Hansford, Mary Blossom
Harvey, Fern Mildred
Hurd, William Burton
Irvine, Charles Henry
Jenkins, Llewellyn Arthur
Johannson, Arnleifur Laurenz
Johnson, Skuli
Johnson, Thomas William
Johnston, Lillian Stewart
Kristjansson, Matthildur
Leach, Harold Melville
Leighton, Edmund Herbert
Letham, Walter Gibb
Lipsett, Florence Queenie
Loft, Arthur
Logan, Lois Ada
Long, William
de Margerie, Antonio
Maxwell, Jessie Winnifred
McKay, Joseph Fortescue
Milner, William Herbert
Moffatt, Edward Knowler
Mountford, Wilfrid
Murray, William Anderson
Paquin, Pierre
Parsons, Robin Chester
Paulson, Margaret
Phillips, John Elbert
Phin, John Richard
Popham, Earle Cameron
Prud'homme, A. Arthur
Rhodenizer, Vernon Blair
Richardson, Blaine
Speers, Russell West
Thomson, Robert
Turner, Ada Ester
Watson, William Douglas
Weir, Albert Jackson
Zerebko, Orest

LL.B.

Anderson, John Thomas Milton, B.A.
Doidge, Walter Alexander, B.A.
Graham, Archibald Muir
Hayes, Frederick Charles
Lee, Raymond McFarlane
Macdonald, Malcolm Whitney
McGreevy, Ernest William
Milne, John Jamieson
Neville, Allen Erwin, B.A.
Redman, Daniel Lee
Robinson, Thomas Wesley
Speers, George Cecil, B.A.
Thompson, Edward Payson
Trotter, Austin Stanley

LL.B. Ad Eundem Gradum

Plante, Joseph Oswald, B.A. (Manitoba), LL.B. University of North Dakota.

M.D.

Aykroyd, William Herbert
Alford, Andrew Allan
Bates, William John
Bird, Frederick Valentine
Blondal, August
Cameron, Lyle John
Chestnut, William Alexander
Cole, William
Dunham, Franklin Fletcher
Ferg, Edwin James
Floyd, Frank Hope
Fryer, Irvin Offero
Groulx, Donald Luther
Gunne, Livingston Gilbert
Heringer, Wilfrid J.
Kerster, John Kennedy
Kiteley, John Edgar
Mathers, Alvin Trotter
Monro, Campbell Hamilton
Murray, Angus Adam
Pickup, William Samuel
Ross, Edith Mackay
Sadleir, John Frederick
Sharman, William James
Stewart, Aubon Earl
Waite, James, B.A.
Williams, Gerald S.

C.M.

Mathers, Alvin Trotter

B.C.E.

Auger, Albert, B.A.

Hunt, William Harold

Urie, Harry Roy

Wallace, William Sherriffe

B.C.E. Ad Eundem Gradum

Rutledge, Michael Joseph, B.Sc. in Engineering, University of New Brunswick.

B.E.E.

Munro, James Calder

Sharpe, Clarence Bogardus

B.S.A.

Stephen, William John, B.S.A., Manitoba Agricultural College.

M.A.

Davis, Eugene Charles, B.A., University of Toronto. Thesis: "The Stage History of Shakespeare's Julius Caesar."

Neelin, Thomas Addison, B.A., University of Manitoba, 1910. Thesis: "The Sensitiveness of the Eye to Light and Color."

Schofield, Robert, B.A., University of Manitoba, 1907. Thesis: "Mysticism in Hindu Philosophy."

Shirley, James Alvin, B.A., University of Toronto. Thesis: "Christianity and the Social Problem."

Speers, George Cecil, B.A., University of Manitoba, 1908. Thesis: "The Relative Merits of the Examining and Accrediting Systems."

Appendix V.

STUDENTS IN ATTENDANCE, 1912-1913

ARTS

(Unless otherwise indicated, the Post Offices are in Manitoba.)

First Year

Name	College	Address
Adamson, Herbert	(J)	Winnipeg
Allison, David	(M)	Winnipeg
Annis, Harold Ryerson	(M)	Winnipeg
Baderski, John	(B)	Melville, Sask.
Baldock, Frederick Birch	(J)	Middlechurch
Baldwin, John Henry	(J)	England
Barber, Sadie Rose	(M)	Winnipeg
Basarabowich, Michal F.	(M)	Winnipeg
Batten, Charles William	(W)	Woodmore
Beath, Euphemia Gray	(M)	Winnipeg
Bellavance, Norbert	(B)	Norwood
Black, John Francis	(M)	Morden
Brazier, William Mortimer	(J)	Winnipeg
Bridgman, Fred. Willard	(W)	Winnipeg
Broadfoot, Daniel James	(M)	Gladstone
Brown, Carl Gladstone	(W)	Winnipeg
Brunelle, Alfred	(B)	St. Boniface
Brunet, Albert	(B)	St. Jean Baptiste
Bryers, Fred'k Brandon Hamilton	(W)	Winnipeg
Burton, Louise Grace	(M)	Carman
Campbell, Donald Macritchie	(W)	Scotland
Campbell, Matthew L.	(W)	Ireland
Carr, Rupert	(J)	Virden
Carrothers, William Alexander	(W)	Winnipeg
Carruthers, Albert A. I.	(W)	Whitby, Ont.
Childerhose, Clifford	(W)	Rosser
Christie, John Donald	(W)	Winnipeg
Conolly, Irene Isabelle	(W)	Winnipeg
Coombes, Henry Nigel Selwyn	(J)	Winnipeg
Cote, Edouard	(B)	Prince Albert, Sask.
Coubrough, Carol	(M)	Stonewall
Cousley, Glynn Lloyd	(M)	Gladstone
Crawford, J. Harold	(W)	Chester
Cross, Isabel	(M)	Winnipeg
Cuddy, William Alexander	(W)	Sanford
Cumming, William Calder	(M)	Lockport
Davidson, Gordon	(W)	Moose Jaw, Sask.
Dawson, George William	(J)	Ireland
d'Eschambault, Alexandre	(B)	St. Boniface
Doiron, Adrien	(B)	Vonda, Sask.

First Year—(Continued)

Name	College	Address
Ewert, William	(W)	Gretna
Fallon, Joseph	(B)	Winnipeg
Ferguson, Frank Willard	(W)	Yorkton, Sask.
Ferguson, Herbert Stanley	(NC)	Dauphin
Finesilver, Goldie Lottie	(M)	Winnipeg
Fleming, Orval Insel	(M)	Adair, Sask.
Fogel, Harry S.	(M)	Winnipeg
Frederickson, Bjorg	(W)	Kandahar, Sask.
Fyles, William Astley Farle	(J)	Portage la Prairie
Gallagher, Cedric Aubrey	(J)	Winnipeg
Gamey, William Arthur	(W)	Newdale
Goodwin, John Francis	(M)	Oak Lake
Greenbank, Katherine Martha	(W)	Kelso, Sask.
Hall, Robert Bruce	(M)	Winnipeg
Halliday, Clarence Walter	(W)	Merlin, Ont.
Hamilton, Gordon	(J)	Regina, Sask.
Hanson, Belle Elizabeth	(W)	Dugald
Hanson, Ingolf	(NC)	Dugald
Hawryluk, Fred. Theodore	(M)	Foley
Heath, Clendon	(NC)	Portage la Prairie
Hiebert, Paul G.	(W)	Altona
Ironside, Walter James	(W)	Winnipeg
Irvine, Frances S. C.	(W)	Eden
Jackson, George Herbert	(W)	Winnipeg
James, Lewis Meguild	(W)	England
Jeanson, Antonin	(B)	Lorette
Jenkins, William Eric	(M)	Winnipeg
Johnston, Isaac C.	(NC)	Dauphin
Joyal, Ildor	(B)	Ste. Agathe
Katzel, Carl Peter	(B)	Winnipeg
Kelsey, Emily Austin	(J)	Winnipeg
Keyes, William Arnold	(W)	Killarney
Kozier, Peter William	(M)	Ladywood
Lauck, Edith C.	(W)	Wawota
Laporte, Napoleon	(B)	St. Norbert
Lewtas, George Edward	(W)	Winnipeg
Lick, Luella Gertrude	(M)	Davidson, Sask.
Livingstone, Helen Lees	(M)	Winnipeg
Long, Thomas MacKay	(W)	Winnipeg
Luczkovec, Michael	(M)	Brandon
McCann, Albert Sidney	(W)	Chatham, Ont.
McColl, Douglas R.	(M)	Winnipeg
McCord, Rose Eileen	(M)	Winnipeg
McDonald, Walter W.	(J)	Fleming, Sask.
McIntyre, Campbell M.	(J)	Winnipeg
Mackenzie, Ona Fraser	(M)	Winnipeg
McLellan, Alma E.	(M)	Virden
McNair, Florence Adele	(W)	Winnipeg
McNeill, Alexander Hugh	(B)	Brandon
Magwood, William James	(W)	Killarney

First Year—(Continued)

Name	College	Address
Manwaring, Hazel Dean	(J)	Birtle
Matchett, Mary Gladys Pearl	(M)	Winnipeg
Mather, Carl	(M)	Winnipeg
Matheson, Kathleen Mary	(J)	Winnipeg
Matthew, Frank	(W)	Winnipeg
Messner, Anthony	(B)	Holmfield
Michell, Humfrey George	(J)	West Selkirk
Mitchell, Jared Carl	(W)	Winnipeg
Moir, Clifford James	(M)	Killarney
Moore, Andrew	(W)	Treherne
Morris, David	(W)	Winnipeg
Morris, Donald	(M)	Scotland
Moulden, Harold W.	(J)	Winnipeg
Mullen, Joseph	(B)	Bienfait, Sask.
Mutch, Harvey George	(M)	Crystal City
Nelson, John Ernest	(W)	Carberry
Oliver, Francis Claude	(W)	Winnipeg
Oliver, Harry Campbell	(W)	Winnipeg
Orde, Dorothy Mable	(SM)	Winnipeg
O'Sullivan, Eugene M.	(B)	St. Boniface
Parent, Henri	(B)	Letellier
Patience, Herbert Lorne	(W)	Saskatoon, Sask.
Paulson, John Victor	(W)	Winnipeg
Pettingell, Gladys Bernice	(W)	Selkirk
Pilling, Harold Hudson	(W)	Winnipeg
Pitblado, Edward Bruce	(M)	Winnipeg
Popp, John	(W)	Winnipeg
Poyser, Annie	(M)	Macgregor
Ratliffe, Percival George	(J)	Elm Creek
Rattray, Helen Bell	(M)	Winnipeg
Reid, David J.	(M)	Hargrave
Rice, Helen McLennan	(W)	Winnipeg
Rice, Robert Stacey	(W)	Winnipeg
Rodgers, Mary Alice	(W)	Elkhorn
Roden, Frank Hyman	(W)	Winnipeg
Rose, Arthur	(W)	Winnipeg
Rosen, Douglas	(W)	Winnipeg
Rosen, Sidney	(M)	Winnipeg
Rowland, Donald Percival	(J)	Winnipeg
Runions, Wesley Douglas Gourlay	(W)	Norwood
Scarlett, Earle Parkhall	(W)	Winnipeg
Scarth, Well. Blakeman	(W)	Virden
Schwab, Martin	(M)	Winnipeg
Simpson, James Wendell	(W)	Winnipeg
Sinclair, Christie Jessie	(M)	Winnipeg
Smith, Cyril Middleton	(M)	Glenboro
Smith, Charles Rhodes	(W)	Winnipeg
Smith, Frank Talbot	(W)	Rosetown, Sask.
Sparling, Harvey Dennis	(NC)	Portage la Prairie
Staples, Elmah Jean	(W)	Winnipeg
Stott, John Wilkie	(M)	Scotland

First Year—(Continued)

Name	College	Address
Stovel, Gordon Augustus	(W)	Winnipeg
Straith, William Thomas	(M)	Eyebrow, Sask.
Tallin, George Percy Raymond	(W)	Winnipeg
Tennant, Dorothy M.	(SM)	Gretna
Thexton, Jean Elizabeth	(W)	Lower Fort Garry
Thompson, Queenie	(W)	Winnipeg
Tobias, Herbie	(M)	Morden
Tobias, William Verner	(M)	Winnipeg
Ulrich, Charles	(M)	Winkler
Van Blaricom, Rita Mabel	(M)	Winnipeg
Vineberg, Abe	(M)	Winnipeg
Vopin, Josephine	(W)	Tantallon, Sask.
Waddington, Blanche	(W)	Winnipeg
Wallace, Margaret	(NC)	Portage la Prairie
Watson, Harry Gibbs	(W)	Winnipeg
Webster, Roy	(NC)	Portage la Prairie
Weidman, Etta Gertrude	(M)	Winnipeg
Wessels, Wyman Ernest	(M)	Norwood
Westman, Anna Aslaug	(W)	Mary Hill
Williams, John L.	(W)	Winnipeg
Willis, Trevor	(J)	Boissevain
Willoughby, Margaret May	(W)	Winnipeg
Wojcenko, Peter Hilarego	(M)	Zawale, Alta.
Yakimishak, Dmytro	(M)	Pleasant Home
Yule, Jean Alexandria	(W)	Killarney
Zimmerman, Karl	(J)	Yorkton, Sask.
Zimmerman, Walter Harry	(M)	Winnipeg

Second Year

Agar, Annie Jane	(M)	Brandon
Anderson, Adelaide Dacres	(M)	Virden
Anderson, John Wilberforce	(J)	Chapleau, Ont.
August, Howard William	(W)	Winnipeg
Beaupre, R. Joseph	(B)	St. Boniface
Bellavance, Joseph	(B)	Norwood
Bere, May	(M)	Winnipeg
Bohemier, Anatole	(B)	St. Norbert
Brandon, Edna Jane	(W)	Brandon
Brett, Norman Ewart	(W)	Dugald
Bridges, Edmund Campion	(M)	Winnipeg
Briggs, Thomas Lewis	(W)	Killarney
Bronfman, Allan	(M)	Winnipeg
Bruce, Kenneth D.	(M)	Winnipeg
Campbell, Arnold Munroe	(M)	Winnipeg
Cherniack, Joseph	(J)	Winnipeg
Cheshire, Frances	(J)	Winnipeg
Chestnut, Janet Cunningham	(M)	Greenridge
Churchill, Harold Shire	(W)	Winnipeg

Second Year—(Continued)

Name	College	Address
Clarke, Jessie Mildred	(J)	Winnipeg
Coates, Barbara	(J)	Winnipeg
Collins, William Ernest	(W)	Winnipeg
Creighton, George Gillespie	(M)	Winnipeg
Cross, Jesse Edward	(W)	Baldur
Cunningham, Edison R.	(W)	Winnipeg
Diamond, William	(W)	Winnipeg
Dowler, Kathleen Elizabeth	(U)	Winnipeg
Driscoll, George Edward	(B)	Winnipeg
DuVal, Paul Guyot	(M)	Winnipeg
Eaton, Anna	(J)	Winnipeg
Ferguson, Clara M.	(NC)	Yorkton, Sask.
Finlayson, Roderick Kenneth	(M)	Lochalsh, Ont.
Gable, Virden	(W)	Winnipeg
Garton, Frances Maude	(J)	Norwood
Gauthier, Paul	(B)	Ste. Agathe
Gelley, Thomas Fraser	(B)	Winnipeg
Genik, John	(M)	Macrorie, Sask.
Gibben, John Edward	(W)	Winnipeg
Halligan, T. W.	(NC)	Boissevain
Helman, Sam.	(M)	Winnipeg
Ireland, Erskine Wallace	(M)	Carberry
Jamieson, William Francis	(M)	Winnipeg
Johanneson, S. Emma	(W)	Winnipeg
Johnson, Thos.	(W)	Baldur
Jonsson, Olafia J.	(W)	Hove
Jonsson, Sigfus	(W)	Selkirk
Keeton, Albert William	(W)	Winnipeg
Kelly, Magnus	(W)	Selkirk
Kelsey, Susie Starkey	(J)	Winnipeg
Jull, Walter Kingsley	(NC)	Maryfield, Sask.
La Fleche, Joseph Georges	(B)	St. Charles
Lamont, Mary E.	(U)	Treherne
Lane, Mary Angela	(B)	Winnipeg
Lee, Carlton G.	(M)	Winnipeg
McArthur, Clarence T.	(M)	Winnipeg
McBeth, Isabel	(M)	Inkster
McCharles, Malcolm Rutherford	(M)	Manitou
McCullough, Lily Anna	(J)	Stony Mountain
McKenzie, Clyde Allan	(M)	Winnipeg
McPhail, Hugh	(M)	Ladstock, Sask.
McPherson, William W.	(M)	Winnipeg
McRae, John Stanley	(M)	Winnipeg
Meaghar, Charles A.	(B)	Winnipeg
Megaffin, Blanche Isabel	(W)	Virden
Minish, Herbert W.	(W)	Gilbert Plains
Muldrew, Alfred William	(M)	Virden
Munroe, Alix Nina Fraser	(J)	Winnipeg

Second Year—(Continued)

Name	College	Address
Newman, Harold Arthur	(W)	Winnipeg
Parkin, Josephine Elinore	(W)	Winnipeg
Parrott, Reginald Elsworth	(J)	Saltcoats, Sask.
Partington, Arthur Sydney	(J)	Selkirk
Paterson, Lamont Livingstone	(M)	Winnipeg
Paulson, Bjorn M.	(W)	Winnipeg
Pearson, Arthur M.	(J)	Winnipeg
Reedman, William Edward	(W)	Winnipeg
Reynolds, Herbert Thomas	(W)	Winnipeg
Riddle, Della May	(W)	Winnipeg
Riddle, Leroy Henry	(W)	Winnipeg
Riley, Evelyn Amy	(M)	Winnipeg
Ripstein, Charles Kay	(M)	Winnipeg
Robb, Maurine	(M)	Winnipeg
Romanovsky, Sara	(W)	Winnipeg
Rundle, Nellie Irene	(W)	Winnipeg
Sayer, Charles Melville	(W)	Winnipeg
Schultz, Stuart	(W)	Baldur
Senecal, Senecal	(B)	Montreal
Sheane, George K.	(W)	West Selkirk
Sim, Fred. C.	(M)	Grenfell, Sask.
Somerset, Marjorie	(W)	Melita
Stefansson, Stefan Bjorgvin	(W)	Mary Hill
Strindlund, John August	(W)	Winnipeg
Sweet, Henry Charles	(M)	Balcarres, Sask.
Szkwarok, George	(B)	Winnipeg
Tapp, Elma Charlotte	(W)	Virden
Thomas, Ethel I.	(W)	Portage la Prairie
Thomas, Minnie Alicia	(W)	Portage la Prairie
Thomas, Norman James	(W)	Portage la Prairie
Thomas, Solveig M.	(W)	Winnipeg
Thorvilson, Walter John	(M)	Winnipeg
Vigfusson, Valdimar Alfred	(W)	Tantallon, Sask.
Wagg, Frank Ernest	(W)	Winnipeg
Walsh, Edgar W.	(M)	Oxbow, Sask.
Walsh, Marguerite K.	(M)	Oxbow, Sask.
Whitehouse, Alfred Ernest	(W)	Winnipeg
Williams, Helen Marguerite	(M)	Carlyle, Sask.
Wood, William James	(M)	Neepawa
Wyrzykowski, Casimir Theodore	(B)	Beausejour
Young, Margaret Irene	(W)	Portage la Prairie

Third Year

GENERAL COURSE

Banks, William	(W)	Caron, Sask.
Campbell, Harold Reid	(M)	Carman
Dennison, Henry H.	(W)	Newdale
Hodgkins, Alfred	(NC)	Louise Bridge
Thomas, Charles T.	(M)	Deloraine

Third Year—(Continued)

CLASSICS

Name	College	Address
Harvey, Walter Bennett	(W)	Dugald

PHILOSOPHY (ENGLISH)

Name	College	Address
Elliott, R. K.	(W)	Winnipeg
Gable, Wellington S.	(W)	Winnipeg
Kirk, Ernest Courtney	(M)	Winnipeg
McLaughlin, Jos. J.	(NC)	Badger
Millen, George Mitchell	(M)	China
Skinner, Morden Earl	(J)	Selkirk
Wilding, George Harold	(W)	Winnipeg

PHILOSOPHY (LATIN)

Name	College	Address
Allaire, Orphidas	(B)	St. Boniface
Beaupre, Joseph Marcien	(B)	St. Boniface
Bertrand, Aime	(B)	St. Boniface
Champagne, Celestin	(B)	St. Norbert
Hacault, Gaston	(B)	Bruxelles
Roy, J. Leon	(B)	St. Boniface
Senez, Lucien	(B)	St. Boniface

VARIOUS GROUP COURSES

Name	College	Address
Baragar, Frederick Drury	(W)	Elm Creek
Cox, Herbert Cecil	(J)	England
Crook, William Henry	(W)	Winnipeg
Florence, George	(M)	Scotland
Gardner, J. A. Sidney	(W)	Winnipeg
Graham, Eleanor Dell	(W)	Roland
Haney, Gladys	(W)	Winnipeg
Helgason, Sigrim I.	(W)	Nes
Kennedy, Wilma Lucile	(M)	Neepawa
Law, Alexandra Wrightson	(M)	Winnipeg
Macdonald, Mary Isabella	(M)	Winnipeg
McMillan, Ivy Jean	(M)	Winnipeg
Meckling, Oscar	(M)	Plum Coulee
Munroe, Marjorie Hopper	(M)	Winnipeg
Nason, Minnie	(W)	Winnipeg
Nichols, Anna Rosalind	(W)	Winnipeg
Parlee, Florence T.	(W)	Winnipeg
Speirs, Mabel Mildred	(M)	Winnipeg
Veitch, Clara Hazel	(J)	Winnipeg
Warkentin, Bernhard	(W)	Winkler
Gordon, Alex. M. (Special)	(NC)	Winnipeg

Third Year—(Continued)

POLITICAL ECONOMY AND HISTORY

Name	College	Address
Einarsson, John	(W)	Logberg, Sask.
Gerrand, David C.	(M)	Virden
Haig, Olive Hastings	(M)	Alexander
Lawlor, Thomas Wilson	(M)	Killarney
McLaughlin, James O.	(M)	Portage la Prairie
McNeil, Glennie	(M)	Boissevain
Munroe, Robert Nelson	(J)	Winnipeg
Robinson, Royston Thomas	(J)	Winnipeg
Thorn, George W.	(W)	Winnipeg
Treleaven, John Clifford	(M)	Killarney
Whittaker, Joseph Thompson	(W)	Winnipeg

POLITICAL ECONOMY AND ENGLISH

Allan, David Jeffery	(M)	Killarney
Anderson, Cyril K.	(J)	Chapleau, Ont.
Bell, Gerald Sylvester	(W)	Winnipeg
Brandow, Ethel M.	(M)	Selkirk
Collins, Franklin Kay	(M)	Winnipeg
Fleming, Thomas Paterson	(M)	Winnipeg
Henry, William Brock	(W)	Winnipeg
Hewitt, John Ridley	(W)	Forget, Sask.
Lowery, Edward Wesley	(W)	Winnipeg
McKay, Elizabeth Marian	(W)	Swan River
McKay, Percival James	(W)	Swan River
Shortt, John Nelson	(W)	Winnipeg
Thorsteinson, G. O.	(W)	Otto

NATURAL SCIENCE

DIVISION A

Hanson, George	(W)	Dugald
Tees, Percy T.	(W)	Winnipeg

DIVISION C

Andrews, James Bernard	(W)	Winnipeg
Skinner, Alexander Ross	(M)	Scotland

DIVISION D

Austmann, Kristjan J.	(W)	Winnipeg
Etsell, Edward	(M)	Virden
Hogg, Arthur W.	(M)	Winnipeg
Lee, George Harold	(W)	Souris
Rutherford, William Gordon	(M)	Wheatland
Yule, Robert Foreman	(W)	Killarney

MATHEMATICS

McCool, Charles Wesley	(W)	Burriss, Ont.
Polson, Alexander	(M)	Winnipeg
Thompson, Stein Olafur	(W)	Selkirk

Fourth Year

GENERAL COURSE

Bridgman, Bidwell Wesley	(W)	Winnipeg
Beauchamp, Christine Margaret	(B)	Qu'Appelle, Sask.
Crookshanke, Olive Evelyn	(W)	Crandall
Loft, Arthur	(W)	England
Mountford, Wilfrid	(W)	Winnipeg
Phillips, John Elbert	(W)	Moose Jaw, Sask.

CLASSICS

Black, George Patton	(W)	Winnipeg
Crummy, Richard	(W)	Winnipeg
Crummy, William Taylor	(W)	Winnipeg
Leighton, Edmund Herbert	(J)	Winnipeg
Letham, Walter Gibb	(M)	Winnipeg
Moffatt, Edward Knowler	(J)	Winnipeg

MODERN LANGUAGES

Bergmann, Magnea G.	(W)	Winnipeg
Harvey, Fern Mildred	(W)	California
Johnston, Lillian Stewart	(W)	Winnipeg
Lipsett, Florence Queenie	(W)	Winnipeg
Logan, Lois Ada	(M)	Lauder
Maxwell, Jessie Winnifred	(W)	Scott, Sask.
Orr, Nina Janet	(M)	Winnipeg
Paulson, Margaret	(W)	Leslie, Sask.

PHILOSOPHY (ENGLISH)

Bowman, Harry Isaac	(M)	Miami
Bushe, William Feltrim	(J)	Winnipeg
Cleave, William Thomas	(W)	Winnipeg
Erickson, John	(W)	Tranter
Johnson, Thomas William	(W)	Winnipeg
Parsons, Robin Chester	(W)	Fortier
Richardson, Blaine	(M)	Winnipeg
Savage, James	(M)	Winnipeg
Weir, Albert Jackson	(W)	Valley River
Zerebko, Orest	(M)	Winnipeg

PHILOSOPHY (LATIN)

Bleau, J. A. M.	(B)	St. Boniface
Bonneau, S. Marcien	(B)	Winnipeg
Long, William	(B)	Winnipeg
Margerie, Antonio de	(B)	Ste. Anne des Chenes
Paquin, Pierre	(B)	St. Boniface
Prud'homme, A. Arthur	(B)	St. Boniface

Fourth Year—(Continued)

POLITICAL ECONOMY AND HISTORY

Campbell, Neil Stanley	(J)	Winnipeg
Garrow, William Murison	(M)	Winnipeg
Garton, Maris Henry	(J)	Norwood
Jenkins, Llewellyn Arthur	(M)	Winnipeg
McKay, Joseph Fortescue	(J)	Prince Albert, Sask.
Watson, William Douglas	(M)	Winnipeg

POLITICAL ECONOMY AND ENGLISH

Ball, Frederick Blatchford	(W)	Winnipeg
Broad, Lloyd L.	(U)	Winnipeg
Cameron, Catherine Jane	(M)	Shoal Lake
Hansford, Mary B.	(M)	Winnipeg
Irvine, Charles Henry	(W)	Winnipeg
Johannson, Arnleifur Laurenz	(W)	Vancouver, B.C.
Leach, Harold M.	(W)	Winnipeg
Milner, William Herbert	(M)	Winnipeg
Mitchell, Elinor Margaret	(M)	Winnipeg
Phin, John Richard	(W)	Moosomin, Sask.
Popham, Earle Cameron	(W)	Winnipeg
Rhodenizer, Vernon Blair	(U)	Winnipeg
Speers, Russell West	(M)	Brandon
Thomson, Robert	(M)	Roden
Turner, Ada Ester	(W)	Beausejour

HISTORY AND ENGLISH

Clendenan, Mary Marguerite	(M)	Winnipeg
Cunningham, Olive Isabel	(W)	Winnipeg
Ducker, Stella May	(W)	Winnipeg
Kristjanson, Matthildur	(W)	Wynyard, Sask.

NATURAL SCIENCE

DIVISION B

Chapman, Arthur Armstrong	(W)	Kisbey, Sask.

DIVISION C

Arnason, Jon	(W)	Winnipeg
English, Harry Oswald	(W)	Harding

DIVISION D

Burns, Charles William	(M)	Oak Lake

MATHEMATICS

Anderson, Olafur T.	(W)	Selkirk
Frith, Lawrence E. C.	(J)	Winnipeg
Hurd, W. Burton	(M)	Winnipeg